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Abstract

Demand-side health policies, such as conditional cash transfers and public health insurance, aim to increase the utilization of healthcare services by providing financial incentives and higher purchasing power to under-served populations. With their increasing popularity in developing countries, there is a need for more research on their implementation and impact. In this dissertation, I examine demand-side health policies in India by evaluating the impact of these policies, identifying challenges in their implementation and proposing ways to improve their effectiveness in increasing the utilization of healthcare services.

In the first chapter, I measure the impact of conditional cash transfers on health-seeking behaviors. I study the rollout of the *Indira Gandhi Matritva Sahyog Yojana* (IGMSY or the motherhood support program), a conditional maternity benefits program implemented in 52 of India's 640 districts in 2011. I estimate the effect of this program on three health-seeking behaviors among pregnant women (at least one tetanus shot, at least one antenatal checkup and full immunization of child) by using a border discontinuity design. I compare the levels of health-seeking behaviors among births in villages along the borders of districts that received the program with those across the border in districts that did not receive the program. I do not find any large significant differences in health-seeking behaviors among births in districts that received the program.

In the second chapter, I further examine the results from the first chapter by conducting a qualitative study to identify challenges in the implementation of conditional cash transfer programs aimed at improving maternal and child health in India. I interview 147 beneficiaries and 24 administrators in four districts that received the program. These districts include one high, one medium and two low performing districts. Besides discussing the overall implementation of the program (levels of awareness, the application process and payment of benefits), I identify three themes that help explain the poor implementation of the program: high administrative burdens on beneficiaries, the reluctant role of street-level bureaucrats and low administrative capacity at the sub-district level.

In the third chapter, I propose a method to increase awareness about demand-side health programs to increase the utilization of healthcare services among intended beneficiaries. I design an intervention to increase levels of awareness about availing benefits under the *Rashtriya Swasthya Bima Yojana* (RSBY or the national health insurance program) among enrolled beneficiaries. I evaluate the effectiveness of village-level awareness meetings in increasing utilization of program benefits by conducting an experiment in 61 villages of Chamarajanagara district in southern India. I find that village-level awareness meetings not only increase the utilization of health insurance benefits but also provide government agencies a unique opportunity to monitor program implementation in remote locations.

THREE ESSAYS ON DEMAND-SIDE HEALTH POLICIES IN INDIA

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Dissertation

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Introduction

Demand-side interventions are becoming a popular policy tool to increase the utilization of healthcare in developing countries (Erlangga *et al.* 2019). After decades of public investments in supply-side interventions such as government-owned and operated healthcare services, governments are now moving to demand-side interventions such as health insurance and conditional cash transfers to increase utilization of healthcare (La Forgia and Nagpal 2012). Demand-side health interventions gained popularity in developing countries as concerns arose about the efficiency, fairness and quality of national health systems (Gupta *et al.* 2010). By providing intended beneficiaries with financial incentives and choice of provider (where possible), these interventions aim to increase utilization of healthcare services among under-served populations. There is a growing literature that focuses on the effectiveness of demand-side health interventions in improving access to healthcare in developing countries (Ladhani and Sitter 2020; Erlangga *et al.* 2019; Gopalan *et al.* 2014; Glassman *et al.* 2013; Spaan *et al.* 2012; Rawlings and Rubio 2005). While most studies have focused on the impact of demand-side health interventions on the utilization of healthcare services, there is an increasing emphasis on studying the implementation of these policies (Hunter and Murray 2017). Public administration scholars have made a similar call for more direct engagement with beneficiaries of public programs to better understand 'citizen-state interactions' (Jakobsen *et al.* 2019). Others have called for more

research on public administration in developing countries (Bertelli *et al.* 2020). My dissertation contributes to this literature by focusing on the implementation of demand-side health policies in India.

India provides an interesting setting to study demand-side health interventions. While a public healthcare system that is owned and operated by the government still accounts for a majority of India's healthcare budget, demand-side interventions are increasingly becoming popular. This is best exemplified by the proliferation of public health insurance and conditional cash transfer programs at the national and state levels.

According to the annual reports of the Insurance Regulatory and Development Authority of India (IRDAI), the percentage of the population with health insurance coverage increased from 1 percent in 2005 to 27 percent in 2015 (IRDAI 2016). Of the 360 million Indians who had any type of health insurance in 2015, 76 percent had subsidized health insurance provided by the government (IRDAI 2016). This large increase in health insurance coverage resulted from the introduction of the *Rashtriya Swasthiya Bima Yojana* (RSBY, or the national health insurance program) in 2008. RSBY provides fully subsidized health insurance to all 'below poverty line (BPL)' households.

Conditional cash transfer programs have also become popular as a demand-side intervention for increasing utilization of healthcare services, particularly among pregnant women. Both national and state governments have introduced new conditional cash transfer programs targeted at pregnant mothers over the past two

decades. Two of the most prominent programs include the *Janani Suraksha Yojana* (JSY or the Motherhood Protection Program) and the *Indira Gandhi Matritva Sahyog Yojana* (IGMSY or the Indira Gandhi Motherhood Support Program) that were introduced in 2005 and 2011, respectively. While the former incentivizes institutional births, the latter incentivizes health-seeking behaviors (such as antenatal checkups and immunization during pregnancy).

As health insurance and conditional cash transfers become popular health policy interventions in India, it is important to study their effectiveness in improving access to healthcare. In this dissertation, I begin by evaluating the impact of a demand-side health policy. I then present results from a qualitative study that examines the challenges of implementing demand-side health policies. I conclude by proposing a method that addresses some of the challenges of implementing demand-side health policies.

This dissertation consists of three chapters. In the first chapter, I examine whether conditional cash transfer programs can increase health-seeking behaviors among pregnant women. In the second chapter, I study the implementation of conditional cash transfer programs by interviewing administrators and beneficiaries of a national conditional maternity benefits program in four states of India. In the final chapter, I focus on the issue of low levels of awareness and its impact on the utilization of a national public health insurance program among hard-to-reach populations. This

dissertation uses mixed methods to study the effectiveness of demand-side health policies in India. The first chapter uses a border discontinuity design to estimate the impact of a conditional maternity benefits program on health-seeking behaviors. The second chapter uses data from qualitative interviews to identify issues in the implementation of a national conditional maternity benefits program. The third chapter, co-authored with Changqing Sun, uses a quasi-experiment to test the effectiveness of an information, education and communication (IEC) intervention in increasing the utilization of a public health insurance program.

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Chapter I: Can Conditional Cash Transfers Increase Health-seeking Behaviors among Pregnant Women? Evidence from India

1. Introduction

Over the past three decades, there has been a proliferation of conditional cash transfer (CCT) programs in developing countries (Bastagli *et al.* 2016; Fiszbein and Schady 2009). CCT programs became popular in the 1990s following the macroeconomic crisis in Latin American countries that led to a decline in the utilization of health and education services (UNDP 2009). Governments in the region responded by providing cash to low-income households if they fulfilled certain conditions like using healthcare services or enrolling children in schools. With the success of CCT programs such as *Oportunidades* in Mexico (Parker and Todd 2017) and *Bolsa Familia* in Brazil (Glewwe and Kassouf 2012) in the early 2000s, there was a push for other developing countries to use similar interventions for improving uptake of social services (UNDP 2009).

Three decades later, CCT programs have become an important policy intervention for improving maternal and child health in developing countries (Glassman *et al.* 2013; Ranganathan and Lagarde 2012). This is particularly true for India where the national government along with many state governments have introduced CCT programs to increase the demand for maternal and child health services. After years of investments

in supply-side interventions such as building new childcare centers and healthcare facilities, governments are now introducing demand-side interventions that incentivize citizens to use these services. The two most prominent CCT programs for maternal and child health introduced at the national level are the *Janani Suraksha Yojana* (JSY or the motherhood protection program) in 2005 and the *Indira Gandhi Matritva Sahyog Yojana* (IGMSY or the motherhood support program) in 2011. While the former incentivizes institutional deliveries by providing a cash benefit to pregnant women who deliver in a public healthcare facility, the latter aims to increase health-seeking behaviors among pregnant women before and after their delivery. Similar CCT programs are also becoming popular at the state-level as some states such as Tamil Nadu and Odisha have introduced their CCT programs. As CCT programs gain popularity, it is important to study their effectiveness in improving maternal and child health.

Most literature on maternal and child health CCT programs in India focuses on JSY, the institutional delivery CCT program. Other than a few descriptive studies, there is very limited evidence on the effectiveness of IGMSY, the health-seeking behavior CCT program. In this paper, I address this gap in the literature by providing the first causal estimates of the effectiveness of IGMSY in increasing health-seeking behaviors among pregnant women. I do so by studying the rollout of IGMSY in 52 of India's 640 districts

in 2011. The program was subsequently renamed and scaled up to all districts¹ in 2016. I use a border discontinuity design to compare health-seeking behaviors for births in areas within the borders of districts that were eligible for IGMSY benefits (treatment) with those across the border in non-IGMSY districts (control). I do not find any large statistically significant differences in health-seeking behaviors among births in treatment and control areas. I further investigate these results by conducting interviews with program beneficiaries and administrators in four IGMSY districts to identify possible explanations for the program's limited effect on health-seeking behaviors. These findings are presented in the second chapter of this dissertation.

In the following section, I discuss the literature on maternal and child health CCT programs in India and describe IGMSY. I then detail the data and methodology used to conduct my analysis. I present results in the fourth section and conclude with a discussion of my results in the fifth section.

2. Maternal and Child Health CCT Programs in India

Since the early 2000s, the government of India has introduced two national CCT programs that aim to improve maternal and child health outcomes. The first program,

¹ The program was renamed *Pradhan Mantri Matru Vandana Yojana* (PMMVY) and scaled up to all 640 districts. Unlike IGMSY, which provides benefits for the first two births, PMMVY limits benefits to the first child only.

Janani Suraksha Yojana (JSY or the motherhood protection program) was introduced by the Ministry of Health and Family Welfare (MoHFW) in 2005 to reduce maternal mortality by increasing institutional deliveries. In 2011, the Ministry of Women and Child Development (MoWCD) rolled out the *Indira Gandhi Matritva Sahyog Yojana* (IGMSY or the motherhood support program) to increase health-seeking behaviors among pregnant women before and after their delivery. Some states have their conditional maternity benefits programs such as the Dr. *Muthulakshmi Reddy* Maternity Benefits (DMRMB) program in Tamil Nadu, a state in southern India, and the *Mamata* program in Odisha, a state in eastern India. They were introduced in 2006 and 2011, respectively. Existing studies on maternal and child health CCT programs in India have primarily consisted of process evaluations (UNFPA 2009; Sinha *et al.* 2016; NITI Aayog 2017). While there have been attempts to estimate the causal impact of maternal and child health CCT programs, these have faced numerous challenges. One of the major challenges of estimating the causal impact of these programs in India is the simultaneous introduction of programs across the country or in individual states. This limits the options for identifying possible control groups for estimating the program's impact. A second challenge is the limited availability of data. There are two major sources of nationally representative cross-sectional maternal and child health data in India: District Level Health Surveys (DLHS) and National Family Health Surveys (NFHS). As JSY was rolled out in 2005, data from the second (2002-04) and third (2007-

08) rounds of DLHS² provide an ideal opportunity to assess the effectiveness of the program. This explains why most studies on maternal and child health CCT programs in India focus on JSY (Lim *et al.* 2010; Powell-Jackson *et al.* 2011; Dongre and Kapur 2012; Sareen and Sivaram 2014). Lim *et al.* (2010) use data from the second (2002-04) and third (2007-08) rounds of DLHS to estimate the impact of CCT programs on institutional births and antenatal care. They find that the program led to a large increase in institutional births but a modest increase in antenatal care visits. Their main specification uses individual-level matching to compare births that received maternity benefits with those that did not. This raises concerns about the likelihood of selection bias as mothers receiving the benefit are more likely to have institutional births. They also find a reduction in perinatal and neonatal deaths due to the program. Powell-Jackson *et al.* (2011) use the same datasets but employ a different methodology to estimate the impact of financial incentives for institutional births. They find that the program was associated with a significant increase in the percentage of institutional births. However, they find that the program did not have any effect on the utilization of antenatal care services or neonatal mortality. Powell-Jackson *et al.* (2011) argue that their estimates are more credible because their study addresses the selection bias problem by

² For more detailed information about various rounds of DLHS and NFHS, see Table 2.

comparing districts that had high program coverage with districts that had low coverage (some districts received the program earlier than others).

Sareen and Sivaram (2014) provide a comprehensive summary of the studies and identify the use of self-reported measures of receiving program benefits as a major limitation. By focusing on individuals and districts that received the program (and comparing them to those that did not), the authors increase the likelihood of selection bias. Sareen and Sivaram (2014) address this concern by using changes in eligibility criteria during the first year of JSY rollout to identify the impact of the program on prenatal care, institutional deliveries and postnatal care. They find “modest effects” of the program on institutional deliveries and no effect on prenatal care and postnatal care. As is evident from the discussion above, it is unclear whether JSY caused large or modest increases in institutional deliveries. As JSY was implemented at the same time as the National Rural Health Mission (NRHM), an initiative by the government to increase investment in rural health infrastructure, the large increase in institutional deliveries since 2005 can also be attributed to NRHM.

In the late 2000s, the government of India shifted its focus on health-seeking behaviors before and after delivery. In 2011, the MoWCD rolled out IGMSY in 52 of India’s 640 districts with at least one district in each of India’s 36 states and union territories.

Simultaneously, the Government of Odisha introduced a similar program called *Mamata* (‘motherhood’ in Oriya, the state language) in all districts of Odisha. Though

there are no quantitative studies that analyze the impact of IGMSY, Raghunathan *et al.* (2017) use cross-sectional household survey data to estimate the impact of *Mamata*. They use nearest-neighbor matching and inverse probability weighting models to estimate the effect of the program on eight outcomes that include antenatal care visits and full immunization. They find that the program increased the likelihood of receiving antenatal care visits by six percentage points and full immunization of a child by 10 percentage points when using the nearest neighbor matching identification strategy (Raghunathan *et al.* 2017).

This paper aims to contribute to this growing literature on maternal and child health CCT programs by studying the rollout of IGMSY to evaluate the impact of financial incentives on health-seeking behaviors before and after delivery. This paper presents the first causal estimates of the effect of this program and is the first study to use a border discontinuity design to study maternal and child health policies in India.

3. Indira Gandhi Matritva Sahyog Yojana (IGMSY)

In 2011, the government of India rolled out IGMSY to provide all pregnant women a cash benefit of ₹4,000³ (\$54) for their first two live births. The program had three

³ ₹4,000 is approximately 10 percent of the average annual household income in India according to the Indian Human Development Survey – Round 2 (IHDS 2012).

objectives: first, to provide pregnant women partial wage compensation so they can rest before and after their delivery; second, to provide pregnant women access to better health and nutrition through additional income; and third, to promote health-seeking behaviors by incentivizing the use of maternal and child health services such as antenatal care visits and child immunization. All women aged 19 years and above are eligible to receive the cash benefit in three installments once they fulfill a set of conditions. Table 1 lists details about each installment.

Once a woman is pregnant, she must register her pregnancy with her local childcare center. The MoWCD runs 1.3 million childcare centers⁴ across the country. Each childcare center (also known as an *Anganwadi* which translates to a courtyard in Hindi) is managed by a childcare worker, who is assisted by a childcare helper. The childcare worker is responsible for conducting non-formal pre-school activities for the children, record-keeping (monitoring the health of all pregnant women and children), counseling pregnant women and new mothers, managing the supplementary nutrition program, assisting health workers in immunization drives and undertaking a survey of all households in the village. The childcare helper cooks the food and cleans the center. The childcare worker is responsible for implementing IGMSY by informing eligible beneficiaries about the program and submitting applications for each installment on

⁴ Childcare centers are run under the Integrated Child Development Services (ICDS). As per ICDS program guidelines, there should be a childcare center for every 300 individuals.

their behalf. All pregnant women receive a Mother and Child Protection (MCP) card when they register for their pregnancy at the childcare center. The MCP card helps childcare workers keep track of the mother and child's health indicators (such as weight, height and immunizations). Once the mother has met all the conditions of an installment, the childcare worker applies for the benefit on their behalf. For each installment, the mother must submit a copy of her MCP, bank passbook and Unique Identification (UID or *Aadhaar*) card to the childcare worker. The childcare worker submits this application to her supervisor⁵ who submits it to the block child development office. The block office then sends the information to the district office which uploads it on the IGMSY software to inform the MoWCD of the beneficiary's claim. Payments are made directly to the beneficiary's bank account.

The program was implemented in 52 of India's 640 districts. These districts were selected using a composite score developed by the MoWCD. The composite score was created by adding six maternal and child health indicators from the third round (2007-08) of DLHS. These indicators include literate female population, pregnancy registered in the first trimester, received at least three antenatal checkups (ANCs) during last pregnancy, institutional births, children aged 12-23 months who are fully immunized (BCG, three doses each of DPT, Polio and Measles) and children breastfed within one

⁵ Each district is divided into blocks and each block has a block child development office. Each block child development office has supervisors who are responsible for supervising groups of childcare centers.

hour of birth. As all six indicators are percentages, the maximum score possible is 600.

According to IGMSY program guidelines, the MoWCD selected a mix of high, medium and low performing districts to learn lessons from program implementation in different types of districts before scaling it up to the rest of the country (MoWCD 2011). Of the 52 districts, 11 were high performing, 26 were medium performing, 11 were low performing and 4 were union territories⁶ (UTs). Districts were selected to ensure that at least one district was selected from each of India's 36 states and UTs. Figure 4 shows the location of these districts.

Unlike JSY, which was implemented simultaneously across the country, IGMSY was only rolled out in 52 of India's 640 districts. This provides an ideal opportunity to study the effectiveness of maternal and child health conditional cash transfer (CCT) programs in India. One of the major concerns while identifying the causal impact of any program is the lack of good control groups. In the case of IGMSY, there are many potential control groups as the program was not only implemented across the country but also across different types of districts based on performance (i.e. high, medium and low performing districts). In the following section, I discuss the availability of data and the method I use to estimate the causal impact of IGMSY.

⁶ Union territories (UTs) are a type of administrative division in India. Unlike states, UTs do not have their own government but are administered directly by the central government. A district from each UT was selected for IGMSY implementation (these districts were not selected based on the composite score).

4. Data and Methods

As mentioned in the previous section, there are two major sources of data on maternal and child health in India: National Family Health Surveys (NFHS) and District Level Health Surveys (DLHS). While the former is part of USAID's Demographic Health Surveys (DHS), the latter is conducted by the MoHFW. Table 2 provides an overview of these surveys.

Ideally, these surveys could be combined to create a pooled cross-section dataset and used for estimating the impact of the maternal and child health conditional cash transfer (CCT) program by comparing IGMSY districts with non-IGMSY districts over time. However, due to multiple reasons, it is not feasible to pool these surveys for this analysis. First, over the past two decades, many new districts have been created. IGMSY districts were selected using information from the census of 2011 (only NFHS-4 uses this set of districts). Second, while DLHS and NFHS have similar questionnaires, the method of coding responses differs for questions related to immunizations and antenatal checkups. Third, while it is possible to use only the NFHS surveys (to avoid the issue of the coding of responses), the first three rounds of NFHS do not have large enough sample sizes for conducting a district-level analysis. More importantly, the third round (2005-06) of NFHS does not have a district identifier as this was the first

time USAID was using the HIV questionnaire (which has more stringent requirements of anonymity).

Keeping these limitations in mind, I use cross-sectional data from NFHS-4 for this study. NFHS-4 has two distinct advantages: first, unlike its predecessors, it has very large sample sizes to allow for district-level analysis and second, it is the first nationally representative maternal and child health survey in India to provide Geographic Information System (GIS) data.

Border Discontinuity Design

I use a border discontinuity design to estimate the effect of financial incentives on health-seeking behaviors. A border discontinuity design relies on the assumption that people living along borders are similar and if one side of the border receives a treatment, those on the other side can be considered a possible control group for estimation of treatment effects.

As IGMSY districts are spread across the country, I use non-IGMSY districts bordering the IGMSY districts as a control group. While it is possible to use an entire bordering district as a control group for an IGMSY district, I limit my analysis to buffers on either side of the border of IGMSY districts. I do this as some small districts are bordered by large districts and vice-versa which reduces the plausibility of the identifying

assumption that bordering districts are comparable. I create 15km buffers along the borders of all IGMSY districts to identify treatment and control groups for my analysis. Figure 2 illustrates this using a snapshot from ArcGIS.

All births in villages located⁷ in the highlighted area inside the IGMSY district border (red buffer) are in the treatment group while births in villages located in the highlighted area outside the IGMSY district border (green buffer), in the non-IGMSY districts, are in the control group. I do not include births in villages along state borders (as shown in the highlighted district) to avoid comparing births across states. States often have state-level programs that could affect health outcomes. I also drop IGMSY districts that are predominantly urban as I focus exclusively on rural areas because bordering areas⁸ of districts are primarily rural which makes it difficult to find similar control groups for urban districts. I limit my analytic sample to first and second order births based on the program's eligibility criteria.

A border discontinuity design relies on two assumptions: first, in the absence of treatment, the outcomes would be similar along the borders (i.e. births in villages on both sides of the district border would have similar levels of health-seeking behaviors)

⁷ To ensure respondent confidentiality, the Demographic Health Survey (DHS) program responsible for conducting the National Family Health Surveys, randomly displaces the GPS locations of all primary sampling units (PSUs). For rural clusters, there is a positional error ranging from 0 to 5 kilometers, with a further 1% of clusters displaced by 0 to 10 kilometers.

⁸ Each district is centered around a city which serves as the district's headquarters.

and second, there are no spillovers. Ideally, the first assumption can be tested by studying the pre-trends in the variable of interest. In this case, it is impossible to study pre-trends as there is no GIS data available for the previous rounds of NFHS to create similar buffers along district borders. Given this limitation, I use two alternative methods to assess the robustness of my empirical approach. First, I compare the observable socio-economic characteristics associated with births in the control and treatment areas. As observed in Table 3, births in control and treatment areas are similar across all observable socio-economic indicators other than household size. The difference in household size for births in control and treatment areas is small (0.2) and only marginally significant at 10 percent.

A second approach to test the main assumption of a border discontinuity design is to use placebo tests. By randomly assigning treatment to districts that did not receive the program, I can check whether there are significant differences in outcomes between births in control and treatment areas. Results from the placebo test are presented in Table A in the appendix.

Another important concern when using a border discontinuity design is the possibility of spillovers. If pregnant women from non-IGMSY districts were traveling to childcare centers in IGMSY districts and receiving benefits, there would be a concern with spillovers of IGMSY benefits to non-IGMSY districts. As pregnant women are required to submit their UID cards as proof of address, the possibility of spillovers is negligible.

Empirical Model

I use the following linear probability model⁹ to estimate the effect of a maternal and child health CCT program (IGMSY) on health-seeking behaviors for first and second births:

$$Y_{idj} = \alpha + \beta_1 treat_d + \beta_2 X_i + \tau_j + \varepsilon_{idj}$$

where Y_{idj} is the binary outcome measure for birth i in district d in border-quadrant area j (area j includes control and treatment villages along the border of each quadrant¹⁰ of the IGMSY district). The three outcome variables of interest in this study are (1) at least one tetanus shot during pregnancy, (2) at least one antenatal care visit during pregnancy and (3) full immunization of children aged one year and above. I focus on these three health-seeking behaviors as these are the IGMSY conditions for which data is available. Information about other IGMSY conditions such as exclusive breastfeeding, counseling sessions and weighing of infants are either unavailable or include a high number of non-responses. I cluster standard errors at the district-level.

The variable $treat_d$ is coded 1 for all births in IGMSY districts and 0 otherwise. The coefficient of the treatment variable (β_1) estimates the treatment effect (i.e. the difference

⁹ I run logit regressions to check for the robustness of my results from the linear probability model.

¹⁰ I divide each IGMSY district into quadrants and assign a fixed effect to areas (control and treatment) along each of the four segments of the district's border.

in health-seeking behaviors between births in areas that received the program and births in areas that did not). This model estimates the intent-to-treat effect as it considers all first and second births in IGMSY districts as treated. As NFHS data does not include questions about IGMSY, it is impossible to know whether a respondent received program benefits.

The model also includes a vector of individual and household-level control variables. As program uptake may differ based on individual and household-level differences, it is important to control for these characteristics. The model controls for the individual (child's age, child's sex, mother's age, mother's education, birth order and year) and household (household size, religion, caste and wealth quintile) characteristics. Finally, the model includes district border-quadrant fixed effects which improve the identification of the effect of the program by controlling for common factors in the control and treatment areas along the border of each quadrant of the IGMSY district. I divide each IGMSY district into quadrants and assign each segment a fixed effect. By adding border-quadrant fixed effects to the model, I am essentially comparing births along the border of each quadrant of the IGMSY district with births across this border in non-IGMSY districts.

5. Results

Table 4 presents the results of estimating the model for all districts. The estimated treatment effect (β_1) is close to zero and not statistically significant for tetanus shots and antenatal checkups. The effect of the program on full immunization of children aged one year and above is 3.3 percentage points and this is statistically significant at the 10 percent level. This is a relatively small effect compared to other studies which find effects as large as 10 percentage points for similar programs (Raghunathan *et al.* 2017). Given the sufficient sample size, my general finding of no effects when I include all districts in the model is consistent with either true zero effects or masked district-level heterogeneity.

To determine whether these results are masking heterogeneous treatment effects, I estimate the model separately for high, medium and low performing IGMSY districts and the corresponding bordering control areas. This classification is based on the composite score developed by MoWCD. Table 5 presents results from estimating the model for high, medium and low performing districts. For the first outcome (at least one tetanus shot during pregnancy), I do not find any statistically significant differences between births in treatment and control areas. The estimates of treatment effect are close to zero. The only exception is seen with medium performing districts where I find a treatment effect of 2.2 percentage. However, this is only statistically significant at the 10 percent level.

For the second outcome (at least one antenatal checkup), I find a treatment effect of 2.8 percentage points for high-performing districts that is statistically significant at the 1 percent level. The estimate of the treatment effect for medium performing districts is 2.4 percent but this is not statistically significant from zero. The estimate for the low performing districts is close to zero.

For the third outcome (full immunization of children at least 1-year-old), the estimate for the treatment effect for high-performing districts is close to zero. The estimates for medium and low performing districts are 4.4 and 3.3 percentage points, respectively. Both estimates are not statistically significant.

I run three checks to test the robustness of my results. In the first robustness check, I reduce the size of the buffer from 15km to 10km, hence limiting the sample to births taking place within 10km of IGMSY districts' borders. This check is commonly used to test the robustness of results when using a border discontinuity design. I find that the results (see Table B in the appendix) are similar to those in Table 4. In the second check, I restrict my sample to villages that have at least one control or treatment village within a 15 km radius. By doing this, I ensure that every village has at least one corresponding control or treatment village. Once again, the results (see Table C in the appendix) are similar to those in Table 4.

As seen in Table 4 and Table 5, I do not observe any large statistically significant differences in health-seeking behaviors among births along the borders of IGMSY districts. A potential explanation for these results could be issues related to program implementation. While government documents show large allocations of funds to the program between 2011 and 2016 (Sinha *et al.* 2016), it is unclear whether the program had high coverage as the fourth round of NFHS (the only national health survey conducted since 2011) did not include any questions on IGMSY. Finally, the lack of any impact of the maternal and child health CCT program could be a result of problems with program design such as the size of the cash transfer or the method of delivery. To better understand these results, I interviewed program beneficiaries and administrators in four IGMSY districts. Findings from these interviews are presented in the second chapter of my dissertation.

6. Conclusion

Demand-side interventions such as conditional cash transfers (CCT) are becoming a popular policy intervention for improving maternal and child health in India. Over the past two decades, national and state governments in India have introduced multiple maternal and child health CCT programs to increase the utilization of maternal and child health services. Two of the prominent maternal and child health CCT programs in

India are the *Janani Suraksha Yojana* (JSY), an institutional delivery CCT program rolled out in 2005, and the *Indira Gandhi Matritva Sahyog Yojana* (IGMSY), a health-seeking behavior CCT program introduced in 2011. Existing evidence on maternal and child health CCT programs in India primarily focuses on the institutional delivery CCT program, with a few studies on health-seeking behavior CCT programs. This paper aims to address this gap in the literature by presenting the first causal estimates of the impact of IGMSY on health-seeking behaviors among pregnant women in India.

I use a border discontinuity design to estimate the impact of maternal and child health CCT programs by comparing the levels of health-seeking behaviors among births taking place along the borders of districts that received IGMSY with births taking place across the border in districts that did not receive IGMSY. I focus on three health-seeking behaviors: receiving at least one tetanus shot during pregnancy, receiving at least one antenatal checkup during pregnancy and full immunization of children aged 1 and above. I do not find any large significant differences in health-seeking behaviors among births along the borders of IGMSY districts.

Glewwe and Muralidharan (2015) present several possible interpretations of statistically insignificant zero results in program evaluations. First, poor implementation resulting from corruption and administrative failures which the authors describe as a “binding constraint in many developing countries.” Second, the program does not work for most participants but works for some. Finally, the absence of complementary resources

needed for the effective implementation of the program. They conclude that a “black box” program evaluation may provide limited insights about the program. Instead, more data needs to be collected about the intermediate processes.

One of the major limitations of studying a program like IGMSY is the limited availability of data about the program and its beneficiaries. A good illustration of this is the absence of any questions about IGMSY in the most important government-funded national maternal and child health survey. To further examine my quantitative results, I interviewed program administrators and beneficiaries in four of the 52 IGMSY districts (one high, one medium and two low performing districts). Findings from these interviews are discussed in the second chapter of this dissertation.

Ideally, studying the effects of the program using longitudinal data would improve the internal validity of the study. As discussed in the paper, due to the limited availability of data, I conduct my analysis using cross-sectional data. As I use a village-level border discontinuity design, the external generalizability of the results is limited to rural areas along the borders of IGMSY districts. In the future, I hope to address both these concerns by studying the expansion of IGMSY to all 640 districts of India in 2016.

Unlike IGMSY, the *Pradhan Mantri Matru Vandana Yojana* (PMMVY or the Prime Minister Motherhood Program) only covers first-order births (MoWCD 2017). This policy change, along with data expected from the fifth round (2018-19) of NFHS, provides an ideal opportunity to use a difference-in-differences design to estimate the

impact of maternal and child health CCT programs on health-seeking behaviors and other health outcomes in India.

7. Tables and Figures

Table 1: IGMSY Conditions and Payments

Installment	Payment	Conditions
First (end of 2nd trimester)	₹1500 (US \$21)	Pregnancy registered within four months Received at least one antenatal checkup (ANC) Received Iron and Folic Acid (IFA) tablets Received at least one tetanus vaccination Received at least one counseling session
Second (child is three months old)	₹1500 (US \$21)	Childbirth is registered Child received first round of vaccinations (Polio, BCG, DPT-1 and DPT-2) Child has been weighed at least two times after birth Mother has attended at least two counseling sessions
Third (child is six months old)	₹1000 (US \$14)	Child has been exclusively breastfed for six months (self-reported) Child has been introduced to complementary foods in seventh month (self-reported) Child receives second round of vaccinations (Polio and DPT-3) Child has been weighed at least two times between three months and six months of age
Source: MoWCD (2011)		

Figure 1: IGMSY Districts

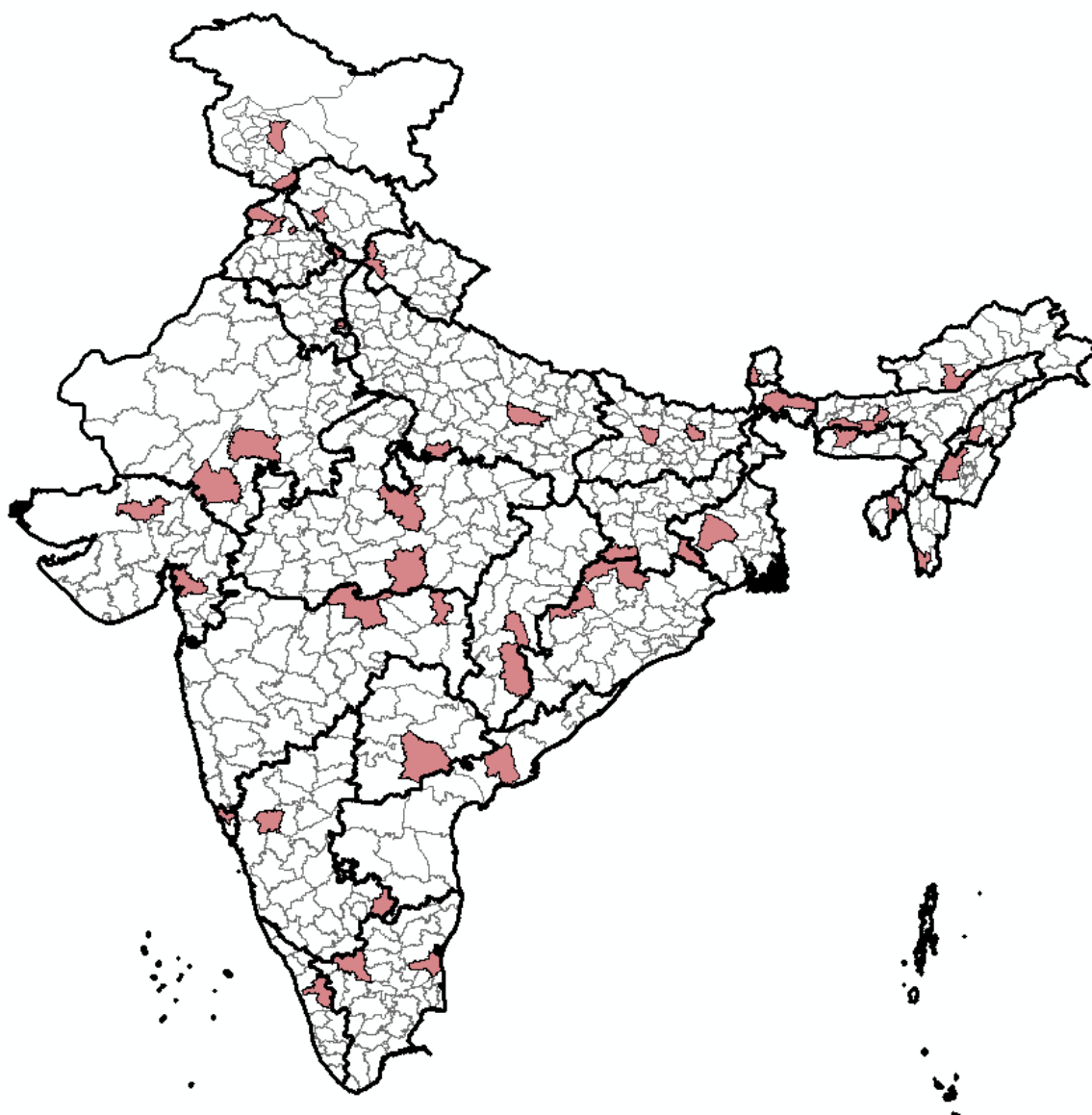


Table 2: Summary of NFHS and DLHS

Survey	Year	Districts Covered (Total Districts)	Sample Size	Notes
NFHS-1	1992-93	–	88,562	
NFHS-2	1998-99	–	91,196	
DLHS-1	1998-99	504 (504)	529,817	
DLHS-2	2002-04	593 (593)	620,107	
NFHS-3	2005-06	–	109,041	No district identifier
DLHS-3	2007-08	601 (612)	720,320	Nagaland State excluded
DLHS-4	2012-13	336 (620)	350,000	Low-income states excluded
NFHS-4	2015-16	640 (640)	568,200	Includes GIS data
NFHS-5	2018-19	–	–	Data collection ongoing

Source: Compiled by author from primary data and Dandona *et al.* (2016)

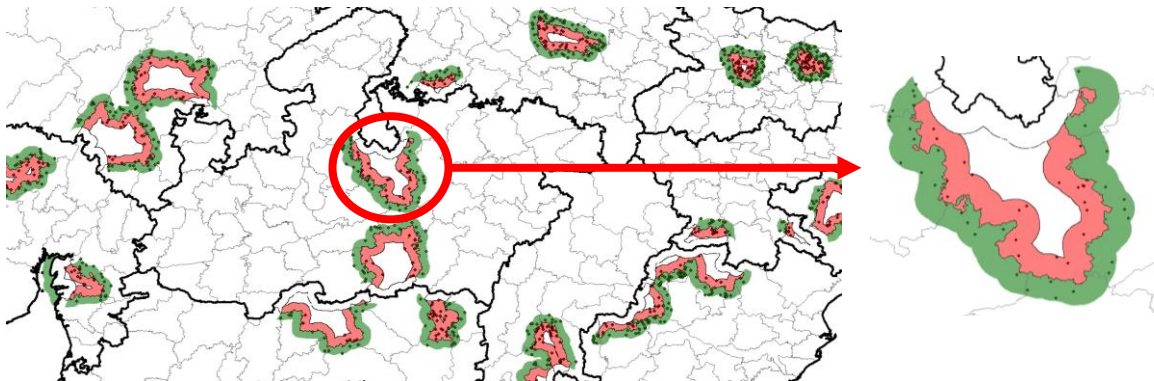
Figure 2: Border Discontinuity Design using NFHS-4 GIS Data

Table 3: Comparison of Treatment and Control Groups

Covariates	Control	Treatment	Difference (p-value)
Mother's Age (Years)	24.9	25.1	0.1 (0.18)
Mother's Education (Years)	6.7	6.8	0.1 (0.59)
Child's Age (Years)	1.9	1.9	0.0 (0.94)
Household Size (No. of Members)	6.3	6.1	-0.2 (0.09)
Girl Child	48.4	48.2	-0.2 (0.84)
First Child	53.3	53.2	-0.2 (0.86)
Wealth Quintile (Poorest)	28.4	29.1	0.7 (0.60)
Wealth Quintile (Poorer)	25.1	23.6	-1.5 (0.21)
Wealth Quintile (Middle)	21.4	22.2	0.8 (0.45)
Wealth Quintile (Richer)	16.7	17.0	0.4 (0.75)
Wealth Quintile (Richest)	8.5	8.1	-0.5 (0.58)
Hindu	82.7	81.8	-1.0 (0.41)
Muslim	11.3	11.6	0.3 (0.79)
Scheduled Castes	22.1	23.1	1.0 (0.46)
Indigenous Tribes	12.6	12.4	-0.2 (0.85)
Total Observations (N)	6412	3836	

Calculated by the author using border-quadrant fixed effects.

Table 4: Results (All Districts)

Dependent Variable	At least 1 Tetanus Shot	At least 1 Antenatal Checkup	Full Immunization if > 1 year
Treated District	0.003	0.012	0.033*
	-0.008	-0.012	-0.02
Mean (Control)	94.5	83.9	57
Border-Quadrants	110	110	110
Observations	7090	7136	7881
R-squared	0.133	0.21	0.169

*** p<0.01, ** p<0.05, * p<0.1

Standard errors are clustered at the district level.

Table 5: Results (By Performance Type)

Dependent Variable	At least 1 Tetanus Shot			At least 1 Antenatal Checkup			Full Immunization if > 1 year		
District Type	High	Medium	Low	High	Medium	Low	High	Medium	Low
Treatment	-0.01	0.022*	-0.007	0.028***	0.024	-0.008	0.01	0.044	0.033
District	(0.019)	(0.012)	(0.012)	(0.01)	(0.019)	(0.025)	(0.03)	(0.033)	(0.032)
Mean (Controls)	93.3	95.1	94.6	96	91	72.1	77.8	60.5	45.6
Border-Quadrants	30	48	32	30	48	32	30	48	32
Observations	1391	3082	2617	1387	3132	2617	1483	3335	3063
R-squared	0.322	0.049	0.031	0.032	0.108	0.154	0.115	0.191	0.06

*** p<0.01, ** p<0.05, * p<0.1

Standard errors are clustered at the district level.

8. Appendix

To test the main assumption of a border discontinuity design, I run a placebo test. I assign treatment status to non-IGMSY districts (that do not have any IGMSY district bordering them). I run the same analysis for these districts and find no significant positive effects of the treatment. The coefficients (treatment effect) are close to zero.

Table A: Placebo Test (Assigned treatment to untreated districts)

Dependent Variable	At least 1 Tetanus Shot	At least 1 Antenatal Checkup	Full Immunization if > 1 year
Treatment District	-0.006 (0.009)	-0.004 (0.012)	0.014 (0.016)
Mean (Controls)	88.2	95.6	57.1
Border-Quadrants	122	122	122
Observations	8,347	8,351	9,374
R-squared	0.133	0.126	0.189

*** p<0.01, ** p<0.05, * p<0.1

Standard errors are clustered at the district level.

Table B: Robustness Check (Reduced buffers from 15km to 10 km)

Dependent Variable	At least 1 Tetanus Shot	At least 1 Antenatal Checkup	Full Immunization if > 1 year
Treatment	0.008	0.005	0.028
District	(0.01)	(0.012)	(0.019)
Mean (Controls)	94.6	85	57.7
Border-Quadrants	109	109	109
Observations	4991	5034	5564
R-squared	0.11	0.226	0.188

*** p<0.01, ** p<0.05, * p<0.1

Standard errors are clustered at the district level.

Table C: Results (Only villages with control/treatment villages within a 15km radius)

Dependent Variable	At least 1 Tetanus Shot	At least 1 Antenatal Checkup	Full Immunization if > 1 year
Treatment	0.007	0.012	0.032
District	-0.007	-0.013	-0.02
Mean (Controls)	94.5	83.2	56.6
Border-Quadrants	108	108	108
Observations	6739	6786	7524
R-squared	0.054	0.207	0.167

*** p<0.01, ** p<0.05, * p<0.1

Standard errors are clustered at the district level.

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Chapter II: Successful Delivery? Identifying Challenges in the Implementation of Conditional Maternity Benefits in India

1. Introduction

As demand-side interventions become a popular policy tool for governments in developing countries, there is growing concern over their effectiveness in improving access to healthcare services (Ladhani and Sitter 2020; Erlannga *et al.* 2019; Spaan *et al.* 2012). Two important concerns are the availability of good quality healthcare services (i.e. supply-side constraints) and the ability of governments to implement these programs (i.e. administrative capacity). The literature on demand-side health policies in developing countries has primarily focused on the former while the latter has received limited attention (Hunter and Murray 2017; Peters *et al.* 2013). As demand-side interventions replace more conventional supply-side health interventions that rely on direct provisioning of healthcare by governments, there is a need to examine the challenges of implementing such policies. This is particularly true for rural areas in developing countries that have underdeveloped markets for healthcare services, limited banking services and inadequate administrative capacity to monitor and supervise social programs.

A similar concern has been raised by public administration researchers who have called for more direct engagement with beneficiaries of public programs to better understand ‘citizen-state interactions’ (Jakobsen *et al.* 2019) and policy implementation (Hudson *et al.* 2019). This, along with a push for more research on public administration in developing countries (Bertelli *et al.* 2020), has led to studies that focus on citizens’ experiences of interacting with the bureaucracy in developing countries (Heinrich 2016; Nisar 2018). This paper aims to draw from, and contribute to, this growing literature by studying the implementation of a maternal and child health conditional cash transfer (CCT) program in India.

In this paper, I present findings from interviews with beneficiaries and administrators of the *Indira Gandhi Matritva Sahyog Yojana* (IGMSY), a national conditional maternity benefits¹¹ program in India, to better understand the challenges of implementing demand-side health policies in developing countries. This qualitative study was conducted in response to the first chapter of this dissertation where I did not find any large significant differences in health-seeking behaviors for births in villages along the borders of IGMSY districts.

In the following section, I discuss the literature on the implementation of maternal and child health CCT programs in India, focusing specifically on qualitative studies. I

¹¹ Maternity benefit programs aim to compensate lost wages for women during their pregnancy. These programs are called conditional maternity benefit programs if beneficiaries are required to fulfil conditions to receive the benefit.

describe the research context and methodology in the third section. In the fourth section, I present findings from my qualitative interviews. I conclude with a discussion of my findings. I identify three themes that explain the limited effectiveness of the program: first, administrative burdens in the form of high learning and compliance costs experienced by beneficiaries; second, the role of street-level bureaucrats responsible for the 'last-mile delivery' of the program; and third, the limited administrative capacity at the sub-district level.

2. Maternal and Child Health CCT Programs in India

Most studies on maternal and child health CCT programs in India either consist of impact evaluations that examine the effect of financial incentives on maternal and child health outcomes (Raghunathan *et al.* 2017; Ghosh and Kochar 2016; Powell-Jackson *et al.* 2015; Joshi and Sivaram 2014) or program evaluations that focus on performance indicators such as levels of awareness, coverage of eligible beneficiaries and receipt of benefits (Vellakkal *et al.* 2017). The latter predominantly focus on the *Janani Suraksha Yojana* (a national institutional delivery CCT program implemented in 2005), with a few examining the *Muthulakshmi Reddy* Maternity Benefits Scheme in Tamil Nadu (Balasubramanian and Ravindran 2012) and the *Mamata* program in Odisha (Ali *et al.* 2018). A small number of studies use qualitative methods to study the implementation

of these programs (Coffey 2014; Sinha *et al.* 2015). See Jain and Mittal (2018) for an overview of studies focusing on cash transfers for maternal and child health in India.

Two studies have focused on the *Indira Gandhi Matritva Sahyog Yojana* (IGMSY or the Motherhood Support Program), the program of interest in this paper: a large 18-state household survey commissioned by the government of India (NITI Aayog 2017) and a 4-state qualitative study by Sinha *et al.* (2015). While the former described the program as a success with some scope for improvement, the latter was critical of the program's design and implementation. According to Sinha *et al.* (2015), the program failed to realize its main objective of providing wage compensation for pregnant women. By imposing conditionalities, it limited the ability of women to access their right to maternity benefits¹² under the National Food Security Act (NFSA) of 2013. They also highlight other issues such as the inadequacy of the cash amount and long delays in the release of funds from the central government to state governments.

In this paper, I add to this literature on the implementation of maternal and child health CCT programs in India in three ways. First, I provide the perspective of frontline workers responsible for implementing the program. Most studies listed above have focused on beneficiaries. Second, I compare the implementation of the program in districts with varying levels of administrative capacity. This helps provide a

¹² The NFSA provides a maternity benefit of ₹6000 (\$81) “in such installments as prescribed by the Central Government” to all women (except those employed by the government).

comparative account of the implementation in high, medium and low-performing districts. Third, I highlight the importance of focusing on sub-district administration to better understand implementation in rural areas. As most studies use the individual, household, village, district, state or national level as their unit of analysis, a very important group of sub-district administrators are left out from these analyses. As I found out during fieldwork, it is these sub-district administrators that hold the key to the program's success in rural locations.

3. Research Context and Methodology

This study aims to develop a better understanding of the implementation of the *Indira Gandhi Matritva Sahyog Yojana* (IGMSY or the Indira Gandhi Motherhood Support Program) in rural areas. The program was rolled out in 52 of India's 640 districts in 2011. These districts were selected¹³ to ensure that it was initially implemented in a mix of high, medium and low performing districts and at least one district from each of India's 36 states and union territories. Figure 3 shows the important stakeholders and their responsibilities in the implementation of the program.

The program is implemented through a network of childcare centers run by the Ministry of Women and Child Development (MoWCD) as part of the Integrated Child

¹³ See Section 3 of Chapter I for more information about the program.

Development Services (ICDS). There are over 1.3 million ICDS childcare centers across India (program guidelines require one childcare center for every 300 individuals). The MoWCD formulates policy guidelines and provides funds for IGMSY to all state governments. At the state level, each district's Women and Child Development office (henceforth referred to as the 'district office') is responsible for managing the implementation of the program in their respective districts. Each district is further divided into sub-district administrative units (blocks) with each having a Block Women and Child Development office (henceforth referred to as the 'block office'). Each block office has a team of supervisors and each supervisor is responsible for overseeing a group of childcare centers in the block.

When a pregnant woman visits a childcare center, the childcare worker informs her about IGMSY and enrolls her in the program by providing a mother and child protection card (used for tracking the fulfillment of all conditions). Once the enrolled beneficiary fulfills the conditions set out in the program guidelines, she submits the required documents (copies of national ID, bank passbook and mother and child protection card) to the childcare worker. The childcare worker verifies the documents and submits them to her supervisor. The supervisor verifies the documents and submits them to the block office. The block office submits a list of beneficiaries who have fulfilled the conditions to the bank and district office. The bank approves the payment and transfers the money to the beneficiaries' accounts. The IGMSY program guidelines

recommend that payments should be made within 30 days of fulfilling all conditionalities for a particular installment (MoWCD 2011).

Selection of Sample Districts and Respondents

This study was conducted in four of the 52 districts where IGMSY was implemented.

As discussed in the first chapter of this dissertation, IGMSY was implemented in a mix of high, medium and low performing districts. These districts were selected using a composite score developed by the MoWCD using six maternal and child health indicators before the program was rolled out. For this study, I selected four districts: one high, one medium and two low performing districts. These districts were selected to ensure they were spread across different regions of the country (east, west and north). I did not select any districts the south as I do not speak south Indian languages. Table 6 provides details of the number of interviews conducted in each district.

In each district, I selected two blocks (one block neighboring the district headquarters and the other away from the district headquarters). In each block, I randomly selected two villages and interviewed all women who were pregnant between 2011 and 2016, the reference period of the National Family and Health Survey (NFHS) used in the quantitative analysis of IGMSY in the first chapter of this dissertation. I interviewed a total of 147 beneficiaries and 24 administrators. Administrators included childcare workers, supervisors and block officials. While childcare workers were interviewed in each village, block officials and supervisors were interviewed based on availability. I

was unable to conduct interviews in one of the four villages in Bhilwara district due to bad weather.

I conducted semi-structured interviews with program administrators and beneficiaries to discuss the implementation of IGMSY. Interviews with beneficiaries were conducted at their homes and were approximately 30-45 minutes long. Interviews with administrators ranged from 30-60 minutes depending on their availability. I received approval to interview human subjects from the Syracuse University Institutional Review Board (IRB). Following the IRB protocol approved for this study, I obtained oral consent from all respondents and did not collect any information about personally identifiable characteristics. I took hand-written notes rather than audio recording the interviews. This helped improve the quality of interviews as respondents (particularly administrators) were more open to sharing information about their experiences with the program as their comments could not be attributable to them.

To analyze the data, I conducted a thematic analysis of all my interviews to identify recurring themes. In this paper, I present an overview of program implementation across all four districts and focus on three themes that emerged from my qualitative findings. Wherever possible, I do this by 'showing' rather than 'telling' (i.e. I share quotes rather than paraphrase them). The purpose of this paper is not to make generalizable or causal claims about the performance of IGMSY but identify and discuss challenges during the implementation of maternal and child health CCT programs.

Sample Characteristics

To provide a better sense of the rural areas in each district, Table 7 presents data on district-level socio-economic characteristics from the Census of India (2011). There is a high correlation between performance type and socio-economic indicators. Rural populations living in Dehradun, the high-performing district, have the highest levels of literacy, use of banking services and mobile phone connectivity followed by those in Patan, the medium-performing district. Simdega and Bhilwara are two of the poorest districts in India: while the former is a remote district in eastern India, the latter is located along an important national highway in western India. Bhilwara's location along this highway explains the high percentage of households with mobile phones and electricity. The large gap in female literacy between the two districts can be explained by the large presence of Christian missionaries in Simdega. Simdega has a predominantly tribal population.

4. Findings

These interviews aim to develop a better understanding of the implementation process by gauging administrators and beneficiaries' experiences with IGMSY concerning their awareness about the program, the application process and payments of maternity benefits. I was also keen on comparing these experiences across the three types of

districts, each with varying levels of administrative capacity. In this section, I begin by sharing insights into these questions and then focus on three broad themes that emerge from my qualitative analysis.

Overview of Program Implementation

Program Awareness

Awareness about a program among intended beneficiaries is critical for its success. This is particularly true for maternity benefits programs as the program is targeted at a specific group (pregnant women) and provides a one-time benefit. These characteristics of maternity benefits programs (and demand-side health interventions in general) limit opportunities for “demonstration effects” that are common in programs that provide regular benefits such as in-kind subsidies and social security payments.

Levels of awareness differed considerably across all four districts. All respondents in Dehradun, the high performing district, were aware of the program. They knew what documents were required and were able to share details about payments. In Patan, the medium performing district, most respondents were aware of the program but few could share information about the application process and payments. A possible explanation for this difference is the gap in female literacy rates in the two districts.

In the low performing districts, levels of awareness about the program were in stark contrast to those in Dehradun and Patan. Respondents in two of the four villages in Simdega had never heard about the program, seven years after it was rolled out. The childcare worker in one of these villages explained that she decided not to implement the program as initial applicants did not receive any payments and accused her of stealing the money (this case is discussed in more detail later). In villages where the program was functioning, most respondents who had applied for maternity benefits could not confirm whether they had received their payments. I had to request them to show their bank passbooks to verify if they had received their payments (in most cases these passbooks were not up to date). Levels of awareness about the application process and payments were higher among respondents in Simdega compared to Bhilwara which could be explained by the gap in female literacy rates in the two districts.

Respondents across all four districts were not aware of the 'wage compensation' objective of the program. Those aware of the program listed nutrition as the main objective of the cash benefit. This was not surprising as all 15 childcare workers interviewed did not mention 'wage compensation' as one of the objectives of the program. By providing wage compensation, maternity benefits programs hope to reduce the workload of pregnant women and allow them to rest before and after their delivery. According to a childcare worker in Bhilwara, this might not be an effective

strategy for women living in intergenerational families who mostly engage in informal agricultural and domestic work:

No amount of money can reduce the workload for women in villages. If the government wants women to take rest [during their pregnancy], they will have to speak with the mother-in-law. They are the ones who determine their daughter-in-law's workload.

While most respondents in Dehradun reported reducing their agricultural and household responsibilities before and after their delivery, respondents in other districts tended to continue their household responsibilities while reducing their participation in agricultural work. In Simdega, one of the respondents, who had given birth to twins a month before the interview, was transplanting rice while breastfeeding one of her infants before we started the interview.

Application Process

Being a national program, the application process was the same across all four districts. However, beneficiaries' experiences with the application process differed considerably across districts. In Dehradun, most respondents who had applied for maternity benefits found the application process straightforward and did not have any specific complaints. In Patan, while many respondents were not familiar with the application process, other members in their households were aware of the documents required for the application.

In Patan, childcare workers expressed concern about the application for the second installment as many women leave the village to travel to their parent's homes for their delivery. This creates a challenge for childcare workers as they cannot follow up with the beneficiary. According to a childcare worker in Patan:

In our area, most women go to their parents' homes for their delivery. I make sure they carry their MCP card with them and get the newborn vaccinated. If they are from a nearby village, I usually know the childcare worker and ask her to make sure the newborn receives all vaccinations and the MCP card is updated. Despite my best efforts, some women forget to carry their MCP cards or miss one of the vaccinations.

In Bhilwara and Simdega, beneficiaries expressed multiple concerns about the application process. In two villages in Simdega, childcare workers demanded ₹50-100 from beneficiaries to process applications. According to one of the childcare workers:

This program creates so much work for us [childcare workers]. We have to collect all the documents, get them photocopied and then submit the application on behalf of the applicant. The closest photocopy shop is half an hour away from the village. The supervisor does not come to the village so I hand over the applications to her at the block. You tell me, who will cover all these costs?

The limited facilities in the villages in these two districts made the application process more challenging. Unlike Dehradun and Patan where applicants could get their documents updated at common service centers¹⁴ (CSCs) or open a bank account at the nearest bank, in Simdega and Bhilwara applicants had to travel long distances (often to the block or district headquarters) to get access to basic services. As most rural areas have limited transportation options (in the villages I visited in Simdega there was only one bus that left for the block/district every morning and returned the same evening), a simple task like opening a bank account to receive maternity benefits can take an entire day.

Payment of Maternity Benefits

IGMSY program guidelines state that payments should be made “within 30 days of the fulfillment of the conditionality” for each installment as “receiving the financial benefits timely by the beneficiary is imperative for the success of the Scheme. (MoWCD 2011)”

IGMSY beneficiaries across all four districts faced extreme delays in receiving payments. Not only did this reduce the program’s effectiveness in ensuring additional income for women during their pregnancy but also reduced interest in the program.

In Dehradun, most respondents reported receiving payments within six to nine months of submitting their applications for each installment. Eligible beneficiaries in Patan had

¹⁴ Common Service Centers (CSCs) are set up by the Ministry of Electronics and Information Technology to provide e-services in rural areas.

a similar experience although some respondents received all three payments together, more than a year after their delivery. This is how one respondent in Patan described these bunched payments:

My husband provided all the documents to the childcare worker a month after we found out I was pregnant. She told us we would receive the first installment in a few weeks. A few months later our son was born and we had not received any money. We submitted the documents for the second and third installments. We kept checking our bank account but no money was deposited. We finally received all three payments when our son was a year and a half old.

Other respondents had similar stories to share with all three payments arriving months after their delivery. Childcare workers in Patan attributed this to teething troubles associated with the initial rollout of the program. According to them, once the program was scaled up in 2017, the application process became more streamlined leading to relatively shorter delays. A similar observation was shared by block officials in Dehradun.

In Simdega and Bhilwara, beneficiaries shared accounts of excessively long delays in receiving payments, ranging from a year to three years. In some cases, respondents never received all three installments. As one respondent in Simdega district described her experience:

When I registered for my pregnancy at the childcare center, the childcare worker told me about the program [IGMSY] and asked for a copy of my bank passbook and *Aadhaar* [UID] card. I did not have a bank account so I had to open a new bank account. Our son was born in July 2013 but we received no payments. We received ₹2500 in September 2015. That was all that we received [of the total benefit of ₹4000]. Who knows where the remaining money went?

The childcare worker in this village explained that while this was not very common, there were cases where payments never reached beneficiaries' bank accounts. She followed up with her supervisor and the block office but it was unclear what happened to these payments.

In summary, there were major differences in policy implementation across the three types of districts. The program was relatively well implemented in the high performing district and, to some extent, in the medium performing district. In the low performing districts, there were many challenges in the effective implementation of the program. There were some common challenges faced across all districts: long delays in payments of maternity benefits and no awareness about the 'wage compensation' objective of the program.

Three broad themes emerge from my qualitative findings that help explain the challenges in implementing maternal and child health CCT programs in rural India.

These include administrative burdens experienced by beneficiaries in their interaction with the state, the pivotal role of street-level bureaucrats in ensuring ‘last-mile delivery’ of the program and the lack of administrative capacity at the block level.

Administrative Burden

Moynihan, Herd and Harvey (2015) conceptualize administrative burdens as “a function of learning, psychological and compliance costs that citizens experience in their interactions with government.” Respondents across all four districts identified various learning and compliance costs associated with the maternity benefits program. While the former resulted from the program’s limited outreach to intended beneficiaries, the latter was a consequence of onerous documentation requirements to prove eligibility. Respondents in the low-performing districts also highlighted the additional administrative burdens associated with opening bank accounts and accessing payments through the banking system.

Across all four districts, all respondents who were aware of the program had heard about it from their childcare workers. The reliance on childcare workers as the main, and often only, source of information was a major limitation in the program’s design. It limited the effectiveness of the program in areas where childcare workers are either overworked or inefficient. For instance, in the two villages in Simdega, where the

childcare worker stopped implementing the program, none of the eligible beneficiaries were aware of the program. It also reduced the likelihood of households that are less likely to visit the childcare center to learn more about the program.

Among those respondents who had applied for maternity benefits, many described the application process as being cumbersome. A common complaint was regarding the requirement of submitting separate applications (and accompanying copies of UID, passbook and MCP card) for each of the three installments. This was particularly burdensome for beneficiaries in Bhilwara and Simdega where none of the seven villages had a photocopying machine. Beneficiaries had to either travel to the nearest town to get documents photocopied or pay an additional fee to the childcare worker to do it for them.

Some documentation requirements related to the Unique Identification (UID) card created compliance costs for many recently married women. While program guidelines do not require beneficiaries to have a UID card, all childcare workers reported that they had been asked to reject any application that did not have a copy of the applicant's UID card. Though UID coverage rates are high and most respondents reported having a UID card, many complained that their applications were not accepted by the childcare worker because their UID card did not have their spouse's name and address. In rural India, many marriages take place between households from different villages and it is common for women to move to their husband's village after marriage. Many young

mothers complained that while they had their UID cards, the cards had their former addresses. As a respondent's husband in Simdega described their ordeal of updating his wife's UID card:

When we got married, we added her name to our ration [food subsidy] card. We submitted that as proof of address for maternity benefits. The childcare worker said only an *Aadhaar* [UID] card would be accepted as proof of address. We went to the block to get the *Aadhaar* card updated but the server was down. They sent us to the district office. We waited at the district office but the queue was too long. We went again the following week and spent a whole day at the district office. It was updated after a lot of difficulties.

The block office is an hour-long bus ride away from this village. The district office is an additional two hours away from the block. He estimated they spent approximately ₹1000 to get her UID card updated. A UID card can be updated online by uploading documents to the UID website. However, many rural households do not own a smartphone and do not have access to the internet.

Interaction with the banking system was another avenue for learning and compliance costs. Most rural households rely on their bank passbooks, which are updated when they visit the bank, to keep an account of payments. For beneficiaries who do not receive any regular income in their bank account, there is no incentive to make a trip to

the bank to fill in their passbooks. The reliance on bank passbooks, combined with the long delays in payments, made it difficult for many respondents to confirm if they had received their payments. While banks allow beneficiaries to link their bank accounts to phone numbers and receive notifications through messages, very few respondents were familiar with this service.

The learning and compliance costs associated with banking differed considerably across districts. In Dehradun, most respondents had updated bank passbooks and used phone messages to keep track of payments. All respondents were able to provide information about the status of benefit payments. In Patan, most households relied on bank passbooks to monitor payments. With better connectivity, banks were accessible and many respondents had updated passbooks. In Bhilwara and Simdega, most households were unaware of their payments. In Simdega, for instance, there was only one bank at the block level compared to multiple banks at the block level in Patan.

Role of Street-level Bureaucrats

Childcare workers play a pivotal role in the last-mile delivery of maternity benefits. As the main source of information about the program and the main facilitator for the application process, they are an important determinant of the success of the program. Across all four districts, childcare workers had a common grievance: the new maternal

and child health CCT program had imposed an additional burden on already overworked and underpaid childcare workers. As a childcare worker in Simdega described this:

Asking us to implement this program without a pay hike is like throwing salt on our wounds. You [the department] want us to maintain all these records [pointing at a pile of registers], conduct door-to-door household visits, distribute take-home rations and now chase pregnant women to fill forms for this program.

This sentiment was expressed by most childcare workers across all four districts.

Childcare workers are paid ₹4500 per month which is less than the average minimum wage for unskilled manual labor (i.e. ₹200 per day) in India. While the program makes a provision of an incentive of ₹200 for the childcare worker for each beneficiary who receives all three payments, it hardly compensates for the additional workload.

According to a childcare worker in Bhilwara:

What will ₹200 do? It does not even begin to cover the costs we incur to get pregnant women to apply for the program... photocopies, trips to the bank to open bank accounts for pregnant women and the constant complaints from applicants whose payments are delayed. Do you know an ASHA [healthcare worker] earns this amount for encouraging a single ANC [antenatal checkup]?

Many childcare workers were unhappy about the incentive amount and compared it to the incentives received by village-level healthcare workers for tasks such as encouraging a pregnant woman to get an antenatal checkup. Unlike childcare workers who receive a monthly salary, ASHAs are volunteer healthcare workers who receive incentives for every task they perform. While it is unfair for childcare workers to compare their salary with an ASHAs incentive, it does show how small the incentive amount under IGMSY is as childcare workers only get that amount after a beneficiary fulfills all the conditions for all three installments.

According to some childcare workers, most of the program beneficiaries were individuals who were likely to have visited the childcare center irrespective of the maternity benefits. In Bhilwara, one childcare worker had this to say:

People who visit the childcare center are receiving the program benefit because I ask them to fill their forms as they are already meeting all the criteria. The problem is reaching out to people who are not coming to the childcare center.

This was a common observation by childcare workers in low performing districts.

Many childcare workers believed that the program was unable to reach out to households that were not regular users of the childcare center. In one village in Bhilwara, houses were separated into two distinct settlements. The larger settlement consisted of upper caste households and a smaller settlement (about 2 kilometers away)

had a group of 10-12 tribal households. The childcare center was in the main settlement. Most respondents from the tribal settlement were not aware of the program. None of their children attended the childcare center. According to the childcare worker for this village:

There is a limit to what we [childcare workers] can do. I can tell people about the program, but I cannot force them to participate. How many times should I tell them? I have visited the tribal settlement many times, but the families show no interest in the program. Some of the pregnant women are below 18 years of age and are not eligible to participate. Other families refuse to get vaccinations. What am I supposed to do?

Difficulties in reaching out to households that are not regular users of childcare centers was a major concern in low performing districts where childcare workers have limited resources (such as no electricity or cooking stoves which leaves them with no option but to cook meals on firewood) and more workload than their counterparts in better-performing districts. According to the program rules of the Integrated Child Development Services (ICDS), there should be a childcare center for every 300 individuals. As low-performing districts tend to have higher fertility rates, they have more children per childcare center. When I visited the childcare centers in Dehradun, most did not have any children present. A childcare worker explained that many households have stopped sending their children to the childcare centers:

On most days there are no children at the center. If some child shows up, I cook lunch for them. People in our villages have become rich. Everyone wants to send their children to private English-medium schools in Vikasnagar [nearest town]. Earlier they would send their children to the childcare center and then the government-run primary school. Only once the child was 7 or 8 years old, they would send them to the good [private school] school. In the past few years, so many private nursery schools have opened up in Vikasnagar, so parents send their 4 to 6-year-olds to those schools.

While the role of childcare workers in Dehradun (and to some extent Patan) was primarily maintaining health records and distributing take-home food packets to pregnant women, their counterparts in Bhilwara and Simdega had the additional responsibility of taking care of 3 to 6-year-old children attending the childcare center every day.

Limited Administrative Capacity

Painter and Pierre (2005) define administrative capacity as “the ability to manage efficiently the human and physical resources required for delivering the outputs of government.” Wu *et al.* (2015) further develop this concept by distinguishing between three types of competencies (analytical, operational and political) at three different

levels (individual, organizational and systemic). I focus on the organizational-operational capacity that examines how policy implementation is organized and how administrators operate and perform (El-Taliawi and Van Der Wal 2019).

Administrative capacity differed considerably across districts based on their 'performance type.' In Dehradun and Patan, the high and medium performing districts, all childcare centers were open during work hours. Block officials and supervisors were responsive to requests for interviews and available at the block office. In Bhilwara and Simdega, the low-performing districts, few childcare centers opened regularly and childcare workers were working with limited resources. In both these districts, the block offices were rarely open and most block officials did not live in the block. There were multiple supervisor and block official positions vacant which further limited the ability of the childcare workers to implement the program.

In two villages of a remote block in Simdega District, none of the respondents had heard about the maternity benefits program. According to the childcare worker in one village, her attempts to help eligible beneficiaries apply for the program backfired.

I filled forms in 2012 but no one received benefits. When no one received anything, people started accusing me of eating up all their money. I did not like that, so I stopped filling forms.

It was unclear how a childcare worker could decide to stop implementing a national program without their supervisor or block official's knowledge. As described in the process flow diagram in Figure 3, while the childcare center is responsible for the frontline implementation of the program, it is the block office that monitors the program's implementation through its team of supervisors. In both blocks of Simdega district, the supervisor and block officials were unavailable for interviews. All calls to supervisors went unanswered and the block offices in both blocks did not open for four consecutive weekdays. The owner of a tea shop near one of the block offices informed me that the office is rarely open and the block officer conducts her official duties from her home in the nearest city, two hours away from the block office by bus.

The missing block officials and supervisors were not unique to Simdega. In Bhilwara, the other low-performing district, a similar story played out. The block office was closed on three of the four days I was conducting fieldwork. On the fourth day, only a clerk was present in the office. When I asked the clerk about the long delays in the processing of applications and delivery of benefits, he blamed the understaffing.

Of the 9 supervisor posts in our block, only one is filled. There should have been 9 supervisors monitoring 30 childcare centers each but currently, one supervisor is looking after more than 250 centers. That should give you your answer.

With eight of the nine supervisor positions vacant, the sole supervisor for this large block was managing approximately 250 childcare centers. Besides her regular duties that involve supervising record-keeping of each childcare center, she is also responsible for collecting applications for the maternity benefits program and ensuring these forms are correctly filled and delivered to the block office. Like Simdega, the block officials lived away from the block and did not come to work regularly. According to the clerk:

No one wants to work here. Who would want to come and live here? The roads are bad. There are no good schools. Only someone with bad karma would get this position.

5. Discussion

This qualitative study was conducted as a follow-up to a quantitative evaluation that found no large significant differences in health-seeking behaviors among births in villages where the program was implemented and those across the district border in villages that did not receive the program. To better understand these findings, I interviewed program beneficiaries and administrators in four districts that received the program. As is evident from the findings of this study, while eligible beneficiaries applied for maternity benefits and received payments under the program, there were many issues in the implementation of the program that limited the ability of the

program to achieve effective last-mile delivery of program benefits. Though the findings of this study cannot be generalized to all program districts, it does provide possible explanations for the limited effectiveness of the program in increasing health-seeking behaviors. More importantly, it identifies avenues for improving the implementation process to ensure easier and timely delivery of program benefits.

As mentioned by childcare workers across all four districts, the program worked for individuals who were already accessing childcare centers but was unable to incentivize households on the margins. A combination of administrative burdens on beneficiaries, the role of street-level bureaucrats in the last-mile delivery and limited administrative capacity in remote districts, curbed the program's ability to reach out to excluded households. These findings raise some concerns about using national demand-side health policies to improve health outcomes.

First, the use of banks for payments and national biometric identification (UID), while done to reduce corruption, have made it more difficult for beneficiaries to access program benefits. The burden of such initiatives falls largely on those beneficiaries who are the main target of the program (households in remote locations who are less likely to access healthcare services). Pritchett *et al.* (2013), while discussing foreign aid in underdeveloped countries, use the term premature load bearing to describe a situation where "pushing too hard, too soon" causes "stresses to exceed capability." The use of new policy instruments that leverage innovative technologies in settings with limited

administrative capabilities creates a similar situation in underdeveloped districts. As Brodtkin and Manmunda (2017) describe it “simplification has given way to increased complexity in the administration of public benefits.”

Second, the role of street-level bureaucrats is critical in achieving successful last-mile delivery of program benefits. According to Hunter and Murray (2017), when demand-side interventions have included additional investment in health facilities and staff, there has been an increase in health-seeking behaviors. Similarly, when “well-supported and supervised” community workers have been involved as facilitators, there have been high levels of awareness about programs.

Finally, the use of ‘one-size-fits-all’ national policies such as IGMSY fails to acknowledge the differences in administrative capacities in different areas. In developing countries such as Brazil, India and South Africa, individual states are often larger than many countries which raises concerns about the effectiveness of national social programs with standardized eligibility criteria and benefits. This is particularly true for India where a one-size-fits-all approach to solving policy problems can further exacerbate regional differences in development. As illustrated in this paper, while the program worked well in the high and medium performing districts, where maternal and child health indicators were already high, the program overburdened a precarious administrative setup in low performing districts.

6. Tables and Figures

Figure 3: Process Flow of IGMSY

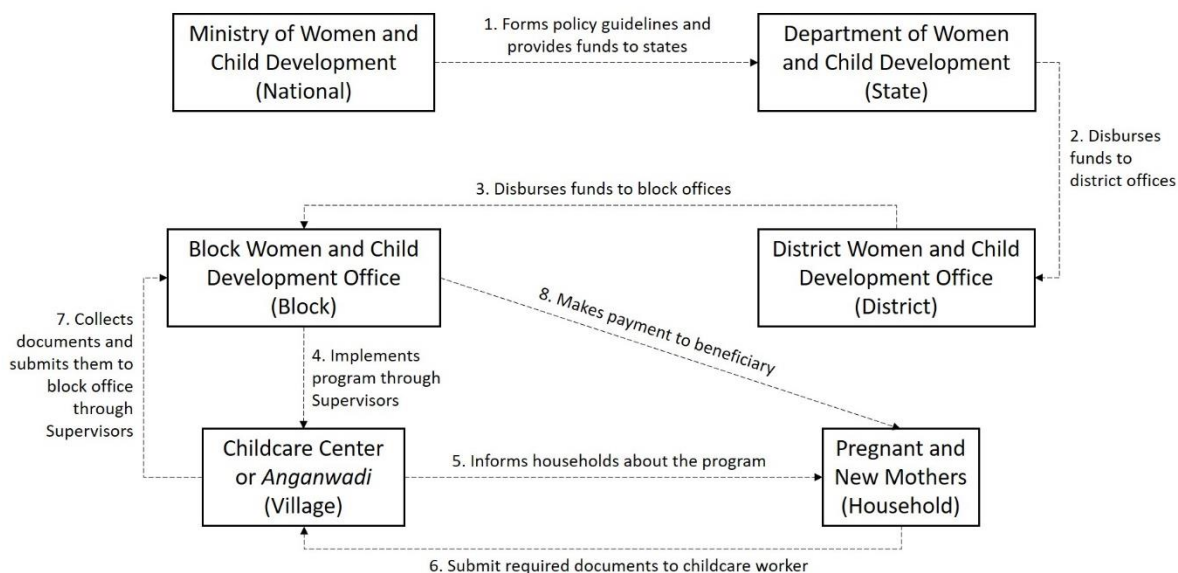


Table 6: Sample Districts

District Name (State)	Performance Type	Number of villages	No. of beneficiaries interviewed	No. of administrators interviewed
Dehradun (Uttarakhand)	High	4	44	9
Patan (Gujarat)	Medium	4	40	7
Simdega (Jharkhand)	Low	4	39	4
Bhilwara (Rajasthan)	Low	3	24	4
Total		15	147	24

Table 7: District-wise Socio-Economic Characteristics of Rural Populations

District Name (State)	Dehradun (Uttarakhand)	Patan (Gujarat)	Simdega (Jharkhand)	Bhilwara (Rajasthan)
Performance Type	High	Medium	Low	Low
Individuals (%)				
Literacy rate (males)	87.6	80.9	75.0	71.3
Literacy rate (females)	66.8	57.0	58.2	40.6
Scheduled Caste	15.8	9.1	7.7	17.5
Scheduled Tribes	13.4	0.6	72.7	11.3
Household-level (%)				
Availing banking services	79.9	48.6	42.5	71.6
Have mobile phones	67.8	56.9	18.8	59.2
Have toilets	75.1	37.1	5.4	11.3
Have electricity	94.5	79.7	10.6	71.1
Source: Census of India (2011)				

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Chapter III: Increasing Utilization of Public Health Insurance Programs:

Evidence from an Experiment in India

1. Introduction

Low levels of awareness about social programs among intended beneficiaries are one of the main factors responsible for low uptake and utilization of these programs (World Bank 2011; Currie 2006). This is particularly true for social programs where benefits are not availed regularly. A case in point is public health insurance programs where many enrolled beneficiaries are unaware of how to avail benefits when they face health shocks (Prinja *et al.* 2017; Swarup and Jain 2010). Often health insurance programs are highly subsidized by the government and this further limit awareness as there is no buy-in from beneficiaries. The likelihood of low levels of awareness is higher in populations that have low levels of literacy and live in locations with low utilization of the program (Fadlallah *et al.* 2018). While low literacy increases the likelihood of “understanding failures” as beneficiaries are unable to understand the concept of health insurance (Platteau and Ontiveros 2013), low utilization of the program limits “demonstration effects” as beneficiaries are unable to learn from those living around them (Palacios and Hou 2011).

In this paper, we examine the issue of low levels of awareness among beneficiaries of public health insurance programs by focusing on the rollout of India's *Rashtriya Swasthiya Bima Yojana* (RSBY or the national health insurance program). The government of India introduced RSBY to reduce out-of-pocket expenditures on healthcare among low-income households. However, early studies of the program showed that while there was high enrollment in the program, the utilization of benefits was very low (Sun 2011; Palacios and Hou 2010). Most studies attributed the low levels of utilization to a lack of awareness about the program among beneficiaries (La Forgia and Nagpal 2012). To address these concerns, many government agencies used information, education and communication (IEC) methods such as information pamphlets and health camps to increase awareness about the program. We had the opportunity to work with the Government of Karnataka, a state in southern India, to assist them in developing new IEC methods to increase levels of awareness in districts with low RSBY utilization. In this paper, we present findings from a quasi-experiment that evaluated the impact of village-level awareness meetings, an IEC method designed after studying the advantages and limitations of existing IEC methods, in 61 villages of Chamarajanagara district in Karnataka.

We use findings from this quasi-experiment to answer the following question: do village-level awareness meetings increase the utilization of public health insurance programs among hard-to-reach populations? We find that village-level awareness

meetings conducted by a local nongovernmental organization (NGO) increase program utilization and provide government agencies an excellent opportunity to monitor program implementation in remote locations. This paper contributes to the implementation and public health insurance literature at a time when many governments in developing countries are moving from public provisioning of healthcare to a mixed model of healthcare that includes demand-side health interventions such as health insurance. The next section provides a brief overview of the *Rashtriya Swasthiya Bima Yojana* (RSBY), India's national health insurance program. The third section discusses the problem of low utilization of RSBY due to low levels of awareness. The fourth section describes village-level awareness meetings, the IEC intervention designed by the authors. The fifth section focuses on the design of our quasi-experiment and discusses issues in randomization. The sixth section presents the results of the experiment. The paper concludes with a discussion of the policy implications of the findings from this study.

2. Rashtriya Swasthiya Bima Yojana (RSBY)

In April 2008, the government of India rolled out the *Rashtriya Swasthiya Bima Yojana* (RSBY or national health insurance program) to provide annual health insurance coverage of ₹30,000 (\$420) to all low-income households in India. By introducing a

national health insurance program, the government supplemented the existing public provisioning of health care with a national health insurance program. The latter allowed beneficiaries to access private healthcare by enrolling in RSBY at no cost as the government fully subsidizes the premium. This policy shift was a response to information collected by the National Sample Survey Organization (NSSO) in 2004 (Ravi *et al.* 2016; Berman *et al.* 2010) that showed high out-of-pocket expenditures by low-income households on private healthcare despite having access to free healthcare at public hospitals. La Forgia and Nagpal (2012) attribute this to overcrowding and low quality of care provided by public hospitals in India.

All households identified as living below the national poverty line can enroll up to five members in RSBY and avail of health insurance coverage of ₹30,000 (\$405). The central and state governments (75:25) fully subsidize the health insurance premiums and households only pay ₹30 (\$0.4) as a registration fee during enrollment. RSBY covers all pre-existing diseases and does not have deductibles or co-payments. RSBY households can avail of in-patient care at any RSBY-empaneled hospital across the country. All households receive a biometric smart card that helps hospitals verify patients' identities. Figure 4 describes the process flow of the program.

The Ministry of Labor and Employment (MoLE) is responsible for formulating the policy at the national level. The State Nodal Agency (SNA), based within a department of each state government, is responsible for implementing the policy at the state level.

Each state selects insurance companies to provide health insurance under RSBY to its low-income population through a competitive bidding process every year (most states bid groups of districts and can have more than one insurance company working in their state in any given year). The SNA provides the insurance companies with a list of eligible households and gives them three months to complete enrollment. Insurance companies have two tasks: enrolling all eligible beneficiaries by providing them biometric smart cards and managing hospitalization claims by making payments to hospitals. They hire smart card service providers (SCSPs) and third-party administrators (TPAs) to enroll beneficiaries and manage insurance claims, respectively. TPAs are also responsible for empaneling all hospitals that are interested in participating in the program. For more information about RSBY see Azam (2018) and Sengupta and Rooj (2019).

Enrollment

Smart card service providers (SCSPs) set up enrollment stations in various locations to allow eligible households to enroll in the program. When eligible households (up to five members) visit the enrollment center, the SCSP captures their thumb impressions and photographs on a laptop. This information is stored on a chip-enabled smart card that has the head of the family's name, photo and age printed on it. Once printed, the smart card is activated by a designated government employee (also known as the Field Key

Officer or FKO) to ensure cards are not distributed to non-eligible households. The enrollment team collects ₹30 as a registration fee from the beneficiary and hands over the smart card to them. The card is provided 'on-the-spot' to reduce delays and corruption in the application process that are common in other social programs (World Bank 2011). The enrollment team also provides the newly enrolled household with a booklet that includes information about the program and a list of RSBY-empaneled hospitals.

Utilization

Third-party administrators (TPAs) manage hospitalization claims under RSBY. They empanel hospitals under RSBY and are responsible for settling all insurance claims. When an individual with an RSBY card visits an RSBY-empaneled hospital, the hospital verifies their identity by using information from their smart card and matching fingerprints. The hospital then selects the required package from a list of RSBY packages available on the RSBY software. All RSBY packages have a predetermined rate and cover the cost of treatment, diagnostic tests, accommodation, medicines, food and travel (in the form of a fixed allowance). Once treatment is availed, the hospital uploads the required document on the RSBY website and the TPA makes the payment to the hospital (i.e. the hospitalization process is 'cashless' for the household). The latter is

important as most low-income households cannot afford to pay upfront hospitalization costs and reimburse these costs later.

3. Low Awareness and Utilization of RSBY

Low levels of awareness about availing benefits have been cited as an important reason for low utilization of RSBY (Thakur 2016; La Forgia and Nagpal 2012; Rajashekhar *et al.* 2011). While most studies on RSBY rely on small-scale household surveys (leading to limited external generalizability of results), others like Shoree *et al.* (2014), Palacios and Hou (2011) and Sun (2011) use utilization data from the RSBY Monitoring Information System (MIS) to analyze trends in hospitalization across the country. Sun (2011) finds that only one-third of villages had any utilization in the first year of RSBY implementation. Palacios and Hou (2011) highlight the importance of “demonstration effects” in explaining why some villages have high utilization while others have none. They find that the “probability of an individual using RSBY is strongly related to the number of people in the same village that have already done so. (Palacios and Hou 2011)” An interesting trend observed from the RSBY MIS is the relatively high enrollment in, but low utilization of, RSBY. Low utilization of RSBY in the early years of implementation is surprising given the phenomenon of pent-up demand that is commonly observed among newly insured individuals in public health insurance

programs (Fertig *et al.* 2018). Jain (2014) attributes this to a lack of awareness among beneficiaries about availing benefits under RSBY.

Platteau and Ontiveros (2013) describe this as an “understanding failure” that results from “deficient information about the insurance product and the functioning of the program, poor understanding of the insurance concept ... resulting in low use of the insurance product by eligible households.” They base this on their study of re-enrollment in a micro health insurance program in rural India where beneficiaries had to pay the premiums. In RSBY, the likelihood of an understanding failure is higher as beneficiaries have limited “buy-in” to the program because the government pays the premium.

To better understand the prevalence of low levels of awareness about RSBY among enrolled households, it is important to look at the program’s design. Figure 5 highlights the three main sources of information during RSBY implementation.

The first and most important source of information is the insurance company. As insurance companies are paid premiums per household enrolled, it is in their interest to enroll all eligible households. The program design encourages insurance companies to find innovative ways to encourage eligible households to enroll in RSBY (to maximize revenues). In practice, as observed by the authors during interviews with stakeholders in Karnataka, insurance companies do not find it difficult to enroll households as the

program is fully subsidized by the government. When enrollment teams arrive at the enrollment station, people rush to get their free health insurance smart cards (as teams spend only 1-2 days at each station). Insurance companies are required to distribute information booklets/pamphlets during enrollment. However, the limited research that exists on the use of information pamphlets during RSBY enrollment suggests that they are not a very effective IEC method (Das and Leino 2011). A major reason for the poor implementation of IEC activities by insurance companies is the subcontracting of enrollment activities to smart card service providers (SCSPs). SCSPs work on low budgets and short timelines, which makes IEC activities a very low priority.

The second source of information is RSBY-empaneled hospitals. By providing health insurance to low-income households, the government expected private hospitals to reach out to this new pool of customers, who could previously not afford private healthcare. However, our interviews with doctors from RSBY hospitals revealed that most private hospitals empaneled under RSBY already have a high number of patients (particularly in remote areas where there are limited healthcare facilities). Hospitals that do reach out to RSBY households focus primarily on urban low-income households because they are easily accessible (as most private hospitals are in urban areas).

The third source of information is the state nodal agency (SNA). RSBY guidelines require state government agencies to conduct information, education and communication (IEC) activities to inform RSBY households about the program. For this

purpose, SNAs can use a part of the ₹30 (\$0.4) registration fee collected from all households during the enrollment process. However, as highlighted by Johnson and Kumar (2013), government agencies are often understaffed and do not have the required administrative capacity to undertake IEC activities. In 2010, the MoLE requested nongovernmental organizations (NGOs) to assist state government agencies in increasing awareness about the program among RSBY households. Over the next few years, many researchers evaluated various IEC activities such as the distribution of information pamphlets (Das and Leino 2011) and health camps in low utilization areas (Johnson and Kumar 2013) to understand the benefits and limitations of these varied approaches to increasing awareness about RSBY.

Health camps and information pamphlets were two of the most used IEC methods adopted by state government agencies for increasing awareness about RSBY. While the former had doctors from RSBY network hospitals visiting smaller towns to meet rural RSBY beneficiaries from nearby villages (Johnson and Kumar 2013), the latter involved distributing pamphlets (or using wall paintings and posters) with information about RSBY benefits and hospitals to all RSBY households (Das and Leino 2011). The limited evidence available suggests that these methods were not effective in increasing awareness among households. A study by Johnson and Kumar (2013) that used randomized control trials to estimate the impact of health camps on RSBY utilization found no impact on hospital claims (utilization). The authors mention that most

attendees at these health camps were not eligible to enroll in RSBY as they were not from low-income households. As most health camps are conducted in smaller towns, it is difficult for RSBY beneficiaries from remote rural areas to attend these camps. While a case can be made for organizing health camps in large villages with low utilization (as opposed to smaller towns), the costs of organizing camps in remote locations are very high and many doctors from RSBY hospitals are unwilling to travel long distances to rural locations.

4. Intervention

Taking these limitations of existing IEC methods into account, we designed a new IEC intervention that uses village-level awareness meetings to disseminate information about RSBY in hard-to-reach areas with low RSBY utilization. Holding meetings at the village-level allows for better targeting of information to RSBY beneficiaries in low utilization villages and allows RSBY households to learn about the program directly from a trained resource person. Village-level awareness meetings involve the following steps:

- **Selection of training partner:** First, the SNA selects a group of nongovernmental organizations (NGOs) or government employees (frontline health or childcare workers) to conduct awareness meetings in low utilization areas. For our

experiment, we selected a state-level NGO to conduct awareness meetings as Karnataka's SNA (Department of Labor) has very limited administrative capacity at the village-level. In states where SNAs have good administrative capacity at the village-level, government employees can conduct awareness meetings.

- **Training of trainers:** Second, staff from the NGO (henceforth referred to as 'trainers') meet at a central location (district headquarters of the SNA or NGO) where they are provided information about the program and trained on how to conduct village-level awareness meetings. Trainers are provided a specially designed pamphlet with information about RSBY. This is an important tool as it helps standardize the information shared by different trainers in various village-level awareness meetings.
- **Announcements in the villages:** Third, trainers inform village-level functionaries (such as members of the village government and frontline workers) in each village about the date, time and location of awareness meetings and request them to ask all households to attend the meeting with their RSBY smart cards.
- **Awareness meeting:** Fourth, RSBY beneficiaries arrive at the meeting venue with their RSBY smart cards. Trainers distribute specially designed information pamphlets and read out the contents. They share examples of people in the

district who have benefitted from RSBY. The meeting concludes with a question and answers session.

- **Payment of trainer:** Finally, trainers take photos of attendees with RSBY smart cards and information pamphlets as evidence of conducting the training and share them with the NGO. The NGO pays the trainer.

5. Data and Methods

To estimate the effectiveness of village-level awareness meetings in increasing RSBY utilization rates, we conducted an experiment in 61 villages of Chamarajanagara District in the state of Karnataka between December 2012 and February 2013. Chamarajanagara District provided an ideal setting for this experiment as 83 percent of its population lives in rural areas (Census of India 2011) and all RSBY hospitals in the district are in the four urban areas (towns). More importantly, the RSBY utilization rate for the first five months ranged between zero and 0.2 which is relatively lower than other districts in the state.

We use administrative data from the RSBY Monitoring and Information System (MIS) to calculate the utilization rate for each village. The RSBY MIS provides information on each hospitalization claim made by each enrolled individual. The following formula measures the utilization rate of RSBY:

$$Utilization\ Rate = \frac{Total\ RSBY\ Claims}{Total\ RSBY\ Individuals} * 100$$

According to Jain (2014), the all-India RSBY utilization rate for the first year of RSBY in 345 of India's 640 districts was 1.9 percent. This figure increased to 2.2 percent for districts completing the second year of RSBY by April 2012. In Karnataka, the average utilization rate for all 30 districts of the state in the first year of RSBY was 0.93 percent (Jain 2014). This provides a good benchmark for comparing results from this study as Chamarajanagara District was in the first year of RSBY implementation during this experiment. The policy period for the first year of RSBY in Chamarajanagara District started in April 2012 and ended in June 2013.

This experiment estimates the impact of village-level awareness meetings on two groups of villages using a phase-in design. Village-level awareness meetings were conducted in 27 villages (henceforth referred to as 'early treatment villages') in the last week of December 2012 and the remaining 34 villages (henceforth referred to as 'late treatment villages') received the intervention in the third week of February 2013. Figure 6 shows a map of Chamarajanagara District. Chamarajanagara District is divided into four administrative blocks. Each block has a block headquarters (a small town where sub-district government offices are located). All RSBY hospitals in Chamarajanagara District are in the block headquarters.

Each block is further divided into gram panchayats (GPs), which is a group of villages that have a common local government (on average, a GP has three villages in Chamarajanagara district). As all villages in a GP have the same local government, there is a constant movement of residents between these villages. We assign the intervention at the GP-level (as opposed to the village-level) to avoid the possibility of spillovers of information between villages in the same GP. Of the 34 GPs that received the intervention, half received the treatment in late December (early treatment villages) and the other half received the treatment in late February (late treatment villages). All 61 villages (34 GPs) are in Chamarajanagara and Kollegala blocks of Chamarajanagara district. We selected these 61 villages as the NGO only works in these villages.

Though the intervention was supposed to be randomly assigned, the NGO responsible for conducting village-level awareness meetings switched GPs between the two groups as some early treatment villages were very close to late treatment villages (raising concerns about possible spillovers). Table 8 provides a comparison of the two groups of villages on important social and RSBY-related indicators. Early treatment villages are larger (number of households) and located further away from RSBY hospitals (distance to nearest town serves as a good proxy for this measure). In terms of demographic characteristics, both groups have similar literacy rates and proportion of socially disadvantaged households (scheduled castes and tribes). RSBY enrollment rates are marginally higher in early treatment villages.

As the intervention was only implemented in Chamarajanagara and Kollegala blocks of Chamarajanagara District, we use villages from Gundlupet block as a control group for this analysis. Gundlupet block, unlike Yelandur block, is located away from the blocks that received the treatment which reduces the likelihood of possible spillovers of information from village-level awareness meetings. This increases the suitability of this block to be a potential control group for this analysis. Table 8 includes information about these control villages. While the control villages are a lot smaller in size compared to villages that received the intervention, they are similar in terms of the average distance to RSBY hospitals and the percentage of enrolled RSBY households. To better evaluate their suitability as possible control groups for this analysis, it is important to look at the trends in RSBY utilization before the interventions were implemented.

Figure 7 shows the cumulative RSBY utilization rate for all three groups of villages from May 2012 to June 2013. The solid and dashed vertical lines indicate the beginning of village-level awareness meetings in the early and late treatment groups, respectively.

Both early and late treatment villages see a sharp increase in RSBY utilization immediately after village-level awareness meetings. However, late treatment villages observe a small increase in utilization in October 2012 relative to early treatment and control villages. These two consecutive increases in late treatment villages are concentrated in one village where a group of RSBY beneficiaries visited an eye hospital to have cataract surgeries on the first weekend of October, followed by a second group

of RSBY beneficiaries who visited the same hospital for the same surgery the following weekend. A visit to the village after the completion of the experiment revealed that an eye hospital from a neighboring district (Mysore) sent their staff to this village to conduct an 'eye camp.' Eye camps are a common practice in rural areas in India. Hospitals identify patients in remote locations for cataract surgeries. Once identified, the hospitals provide transportation for these patients to travel to the hospital. In this case, once the first batch of RSBY beneficiaries returned to the village after their successful cataract surgeries, others in the village who needed cataract surgeries signed up to visit the hospital the following weekend (a case of demonstration effect).

Figure 8 shows RSBY utilization rates for all three groups of villages for seven eight-week phases starting in the middle of May. We use eight-week phases as our reference period because that is the gap between early and late treatment villages receiving the intervention. Neither group receives the intervention in the first four phases (14 May to 25 December). The early and late treatment villages receive the intervention at the beginning of the fifth (starting 25 December) and sixth (starting 19 February) phases, respectively. In the seventh phase, both groups have received the intervention. The control group does not receive the intervention in any phase.

Besides serving as a control group for early treatment villages in the fifth phase, late treatment villages also help assess their suitability as a control group (i.e. did the

treatment have a similar effect on late treatment villages in the sixth phase as it did on early treatment villages).

Given the staggered implementation of the intervention, we use a generalized difference-in-differences model to estimate the treatment effect of village-level awareness meetings on the RSBY utilization rate. To use this approach, it is important to verify the parallel trends assumption (i.e. in the absence of treatment, the trends in the outcome variable would have remained the same for treatment and control groups).

One way to check whether this assumption holds is to look at the trends before the awareness meetings are conducted. In Figure 8, the trends in RSBY utilization rates are very similar for early treatment and control villages. Though the trend for late treatment villages deviates from the other groups between the second and third phases, it is similar to the other groups in the preceding pre-treatment phases. This deviation results from the eye camp that was discussed earlier.

As the parallel trend assumption holds and both treated groups of villages see a similar impact of treatment (in the fifth and sixth phase, respectively), we use a generalized differences-in-differences method to estimate the impact of village-level awareness meetings. The empirical model used to estimate the treatment effect in this study is the following:

$$util_{ip} = \alpha_0 + \alpha_1 treatment_{ip} + \gamma_i + \lambda_p + \varepsilon_{ip}$$

where i denotes village; p denotes phase (time); $util_{ip}$ is the RSBY utilization rate for village i in phase p ; $treatment_{ip}$ is a difference-in-differences estimator that takes the value 1 for every phase p during which village i receives the intervention and 0 otherwise; γ_i is a village fixed effect; λ_p is a phase (time) fixed effect; and, ε_{ip} is an idiosyncratic error term. We are interested in α_1 , the difference-in-differences estimator that measures the effect of village-level awareness meetings on RSBY utilization rates (treatment effect).

6. Findings

We present results in Table 9 for four different combinations of the three groups of villages: all villages; early and control villages; late and control villages; and early and late villages. All models include village and time (phase) fixed effects. Standard errors are clustered at the gram panchayat level. As some of our models have few clusters (GPs), we also present bootstrap p-values in brackets using the wild cluster bootstrap-t method.

The treatment effect ranges from 0.22 to 0.29 and is statistically significant in all four models. This implies that the treatment increases the RSBY utilization rate by approximately 0.25 percentage points in the eight-week phase following the treatment. This is a significant increase in RSBY utilization when compared to the average annual

RSBY utilization rate of 0.93 percent for districts completing the first year of RSBY in Karnataka. To put it in monthly terms, the intervention increases the RSBY utilization rate by approximately 0.12 percentage points in a month while the average monthly utilization rate for all districts in Karnataka is 0.07 percent.

These results are similar to a study by Das and Leino (2011) that used information pamphlets to increase enrollment in RSBY among low-income households in Delhi. While their intervention did not increase enrollment in households that received the pamphlet relative to those that did not, they did find that enrollment rates nearly doubled in a subset of households (both treated and control) that were visited by surveyors to collect information about household characteristics. Like the impact of village-level awareness meetings on RSBY utilization rates, a visit by a surveyor increased RSBY enrollment rates among low-income households.

Internal Validity

As the three groups of villages are non-equivalent, there is a likelihood of selection bias (i.e. the groups could be different in time-variant characteristics that are unobservable). While the NGO attributed the changes in the assignment of treatment among GPs to concerns about contamination (i.e. some early treatment villages were very close to late treatment villages, which could have resulted in spillovers of the intervention), other

factors could have determined this change as well. To address this concern, the study relies on two robustness checks for ensuring the internal validity of these results. First, the parallel trends assumption that ensures that all groups have similar pre-treatment trends in RSBY utilization rates. In this analysis, all groups of villages have similar trends in the first four phases (except for a temporary increase in the utilization rate of late treatment villages in one of the four pre-treatment phases). Second, the phase-in design of the experiment allows for a comparison between the impact of awareness meetings on early and late treatment villages. In this analysis, as seen in Figure 8, the treatment has similar impacts on both groups once they receive treatment.

External Validity

Though the intervention was designed to increase awareness about RSBY in low utilization areas in Karnataka, the results from this study can be generalized to other geographical contexts and social programs. Table 10 compares the socio-economic characteristics of Chamarajanagara district with Karnataka state and India. While Karnataka state has better socio-economic indicators than the national average, Chamarajanagara district has socio-economic indicators that are below the national average. The success of this intervention will primarily depend on two factors: first, the performance of the program (number of active hospitals and enrollment rate in the case

of RSBY) and second, the availability of trainers (presence of NGOs or government frontline workers).

As governments adopt new technologies for improving the delivery of social programs, there will be more opportunities to monitor the performance of these programs. In the case of RSBY, the online data management system allows government agencies to identify areas with low utilization and target these areas with direct communication interventions. Similarly, other programs could also identify areas with low utilization and use similar IEC interventions to increase awareness and improve utilization of social programs.

Positive Externality

While the main objective of village-level awareness meetings was to disseminate information about the program, trainers reported an unintended outcome. Many individuals attended the meetings to share grievances related to the program. Three of the most common grievances were delays in the delivery of smart cards, refusal of treatment and overcharging by hospitals. The delays in delivery of smart cards, which was also reported by Rajashekhar *et al.* (2012), were caused by smart card service providers (SCSPs) not issuing smart cards 'on-the-spot.' To issue smart cards 'on-the-spot', SCSPs had to carry printers and batteries to each village. Our interactions with

village functionaries revealed that many SCSPs would collect the required information (photos and biometrics) on their laptops in each village and print the cards in the nearest town. As the cards had to be activated by a government-appointed field key officer (FKO), the SCSPs would request the FKOs to come to the location where the cards were being printed and activate all the cards. The activated cards were then handed over to the FKOs. This resulted in delays as the FKOs were not always available to activate the cards or, once the cards were activated and handed over to the FKOs, they would delay the distribution of cards. This informal process adopted by the SCSPs to reduce costs left many enrolled beneficiaries without RSBY coverage and defeated the purpose of 'on-the-spot' enrollment.

Other major grievances reported by beneficiaries were refusal of treatment and overcharging by RSBY hospitals. As RSBY had prescribed rates for each treatment, many hospitals were only accepting patients for treatments and procedures that were profitable for the hospital. During our interactions with doctors in RSBY hospitals, many complained about the low rates of RSBY treatment packages relative to market rates. This was a genuine concern as RSBY had a standard set of rates for the entire state and did not account for regional differences in costs of treatments. However, selectively refusing treatment to RSBY beneficiaries was a violation of program rules. Some RSBY beneficiaries also complained about being charged for treatment. Under RSBY, patients

are not supposed to make any payments as all costs are covered by the standard rate set by the health insurance program.

Trainers documented these cases and shared them with the SNA. With a lack of administrative capacity to monitor the program in remote locations, the government agency started benefitting from these inputs as it allowed officials to hold the insurance companies accountable. The village-level awareness meetings not only increased awareness among RSBY beneficiaries but also served as an effective monitoring tool for the government. While increasing awareness is one way to improve the utilization of a public health insurance program, it is also important to address supply-side issues that contribute to low utilization.

7. Conclusion

The main objective of designing and evaluating an information, education and communication (IEC) intervention for government agencies responsible for managing RSBY (India's national health insurance program) was to provide an effective and easy-to-implement method for disseminating information about the program and increasing utilization of RSBY in low utilization areas. This study estimated the impact of village-level awareness meetings and found that they increase RSBY utilization rate by approximately 0.25 percentage points in each eight-week period following the

intervention (or a monthly increase of approximately 0.12 percentage points). In comparison, the average annual RSBY utilization rate for districts completing the first year of RSBY in the state of Karnataka was 0.93 percent (or a monthly utilization rate of 0.07 percent).

Should government agencies use this IEC method to address low levels of utilization of public health insurance programs? Village-level awareness meetings are effective in ensuring that all beneficiaries attending the meeting get an opportunity to learn about the public health insurance program and get answers to their questions from a trained resource person. However, these meetings come at a cost that is relatively higher than other more conventional IEC methods such as information pamphlets and health camps. For example, the cost of printing IEC information pamphlets per village is approximately ₹200 (\$2.7) while the cost of each village-level awareness meeting is ₹1500 (\$21).

It is important to note that the main objective of designing this IEC method was to help state government agencies reach out to program beneficiaries in remote areas with low utilization rates. Hence, village-level awareness meetings are more effective as a targeted IEC method for areas where program utilization is very low. As governments adopt new technologies to deliver social programs, they will have access to more regular data on program utilization. This will allow governments to identify areas with low program utilization. Once identified, the government can hire an NGO or use

frontline workers to conduct village-level awareness meetings in these locations. Not only will this ensure dissemination of information but also allow government agencies to assess why utilization has been low in these villages.

8. Tables and Figures

Table 8: Comparison of Sample Villages by Treatment Status

Characteristic	Early Treatment Villages	Late Treatment Villages	Control Villages
Scheduled Caste (%)	33.4 (23.9)	29.2 (15.5)	20.4 (16.3)
Scheduled Tribe (%)	11.3 (11.5)	11.1 (16.3)	10.7 (17.8)
Literacy Rate (%)	51.9 (5.3)	53.4 (5.8)	53 (6.8)
No. of Households	964 (614)	811 (657)	424 (342)
Population of Village	4024 (2597)	3329 (2813)	1733 (1383)
Distance to Nearest Town (in km)	16.5 (8.1)	12.8 (6.5)	15.5 (7)
Households Enrolled in RSBY (%)	24.3 (17.1)	20.1 (10.4)	18.9 (14.9)
No. of Villages	27	34	91
No. of GPs (Clusters)	17	17	28

Note: The table presents means and standard deviations (in parenthesis). Figures are calculated using data from the Census of India (2011). RSBY households are calculated using RSBY administrative data from the RSBY MIS (for the policy period 2012-13).

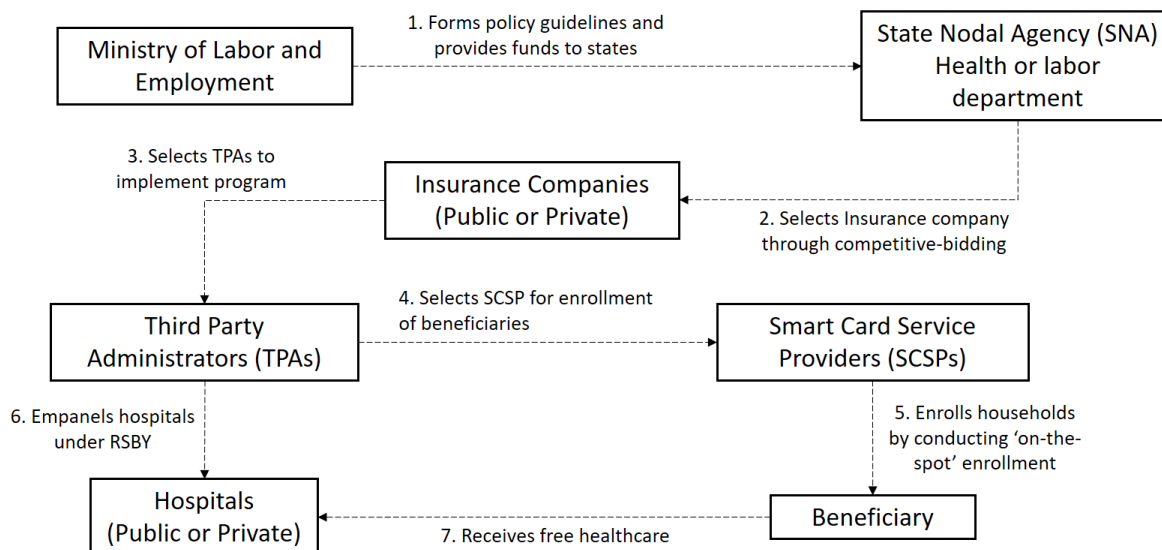
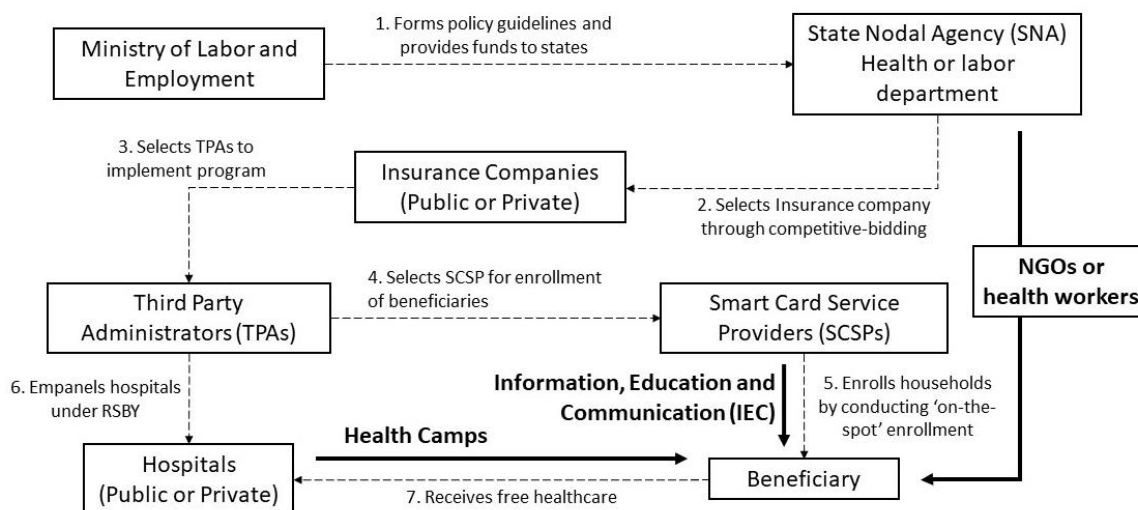
Figure 4: Process Flow Diagram of RSBY**Figure 5: Flow of Information in RSBY**

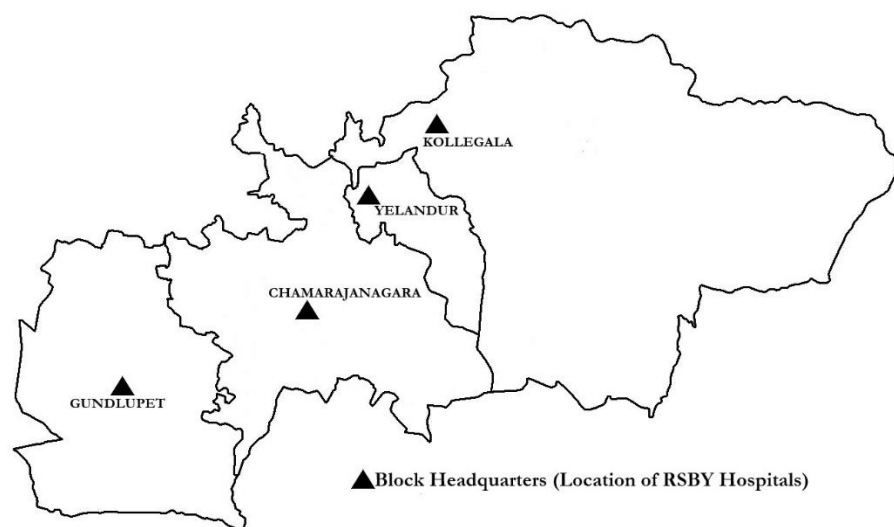
Figure 6: Chamarajanagara District

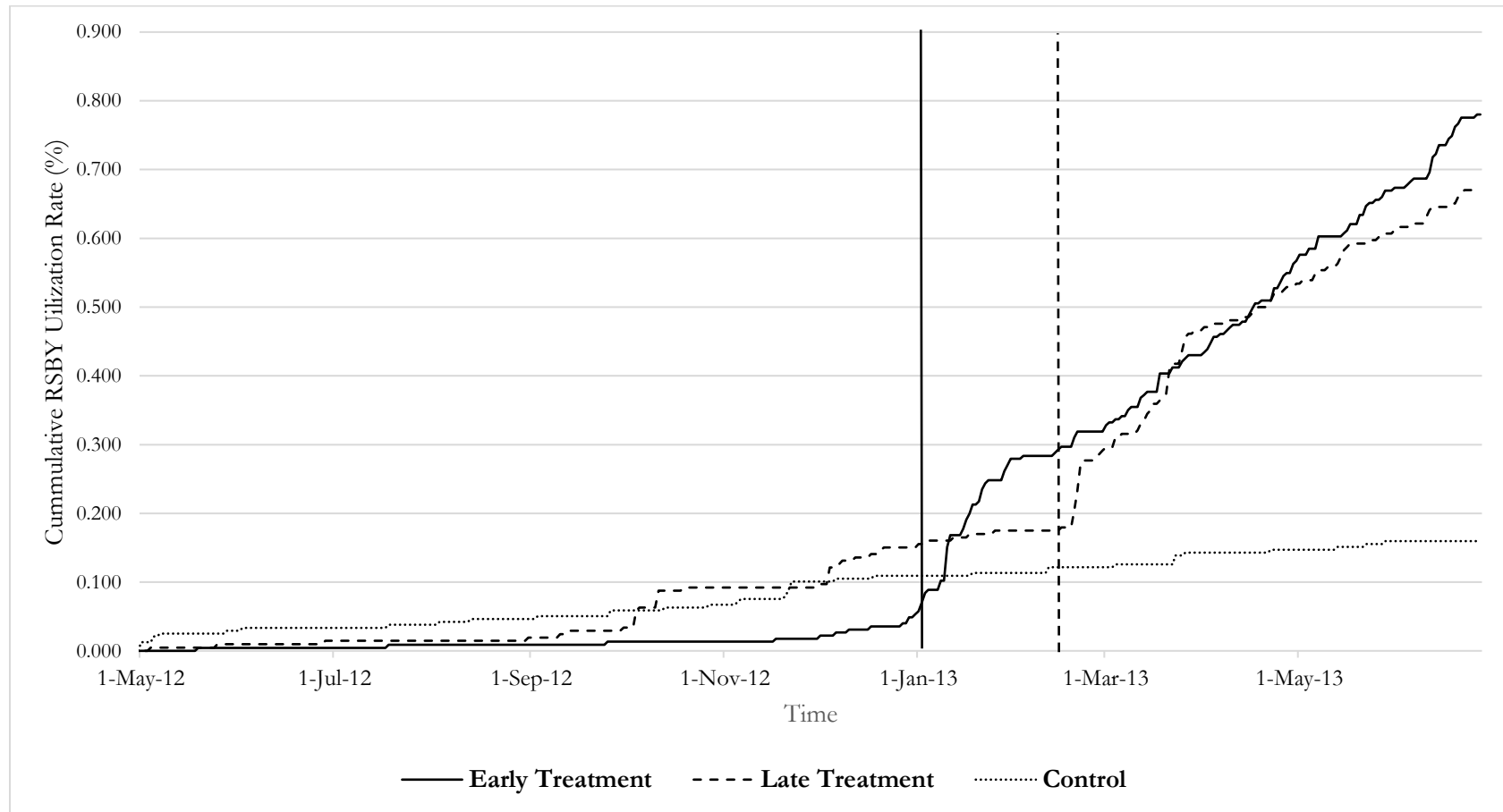
Figure 7: Cumulative RSBY Utilization (All Villages)

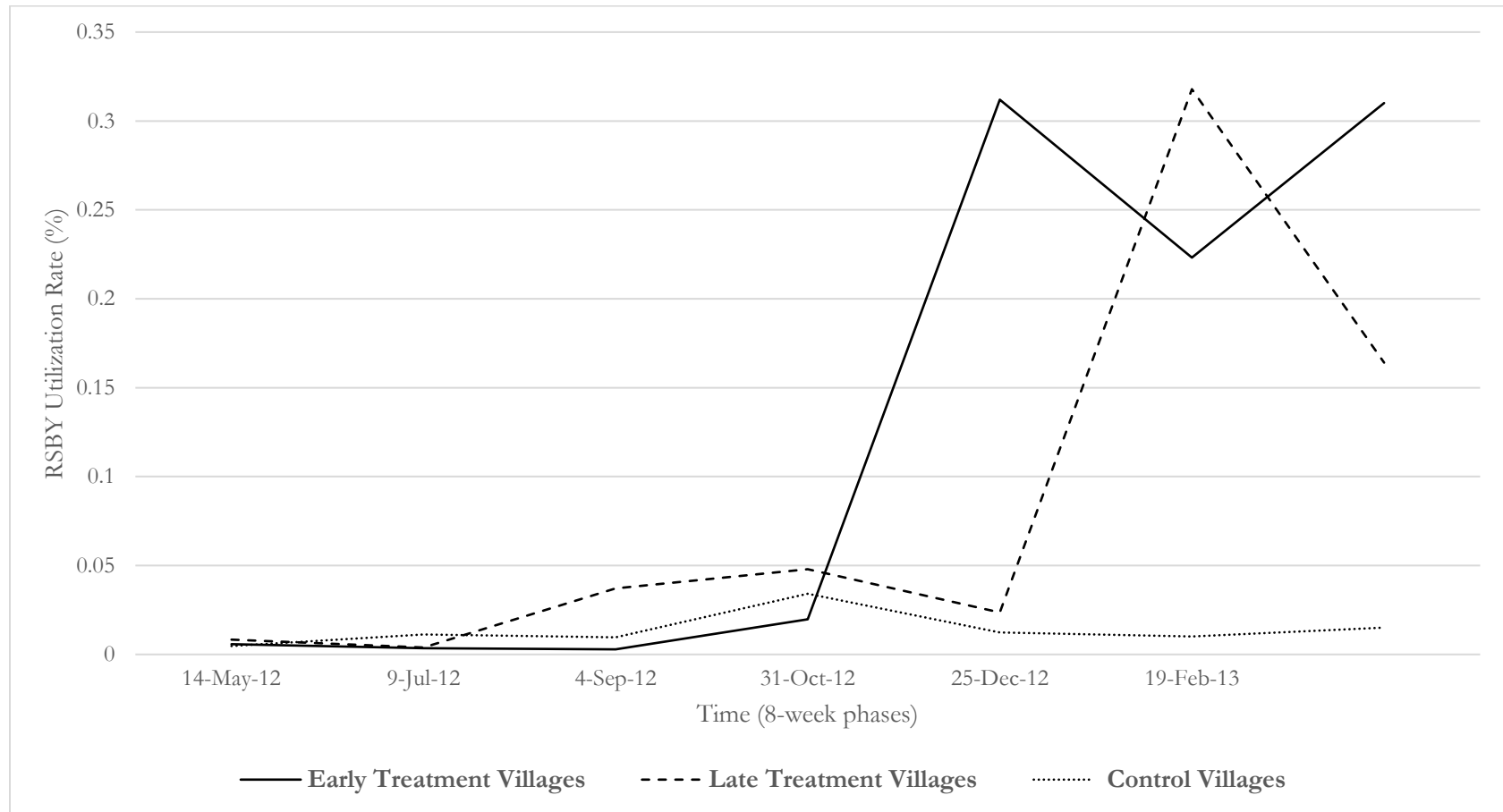
Figure 8: RSBY Utilization Rates (All Villages)

Table 9: Results

Dependent Variable RSBY Utilization Rate	All Villages	Early Treatment and Control Villages	Late Treatment and Control Villages	Early and Late Treatment Villages
Treatment Effect	0.250*** (0.061) [0.000]	0.276** (0.117) [0.000]	0.218*** (0.054) [0.000]	0.291*** (0.093) [0.000]
N	1064	826	875	427
R ²	0.243	0.243	0.198	0.234
Gram Panchayats (GPs)	63	45	45	34

Note: Village and time (phase) fixed effects are included. Robust standard errors clustered at the Gram Panchayat (GP) level are reported in parentheses. Bootstrap p-values (999 replications) are reported in brackets.

*** $p < 0.01$ ** $p < 0.05$ * $p < 0.1$

Table 10: Comparison of Chamarajanagara with Karnataka and India

Characteristic	India	Karnataka	Chamarajanagara
Scheduled Caste (%)	18.4	20	26.2
Scheduled Tribe (%)	10.4	9.2	11.4
Literacy Rate Males (%)	82.6	81.2	63.3
Literacy Rate Females (%)	61.5	63.8	58.8
Women with 10 years of more of schooling (%)	27.3	35.1	28.1
Households with electricity (%)	83.2	97	93.4
Households with toilets (%)	36.7	42.6	27.1
Households with health insurance (%)	28.9	31.8	24.6
Children Fully Immunized (%)	61.3	64.8	59.5

Source: Caste/Tribe data from Census of India (2011) and remaining figures from NFHS-4 (2015-16) Factsheets for India, Karnataka and Chamarajanagara. All figures for rural populations.

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Conclusion

In this dissertation, I examine the implementation and impact of demand-side health policies in rural India. I focus on conditional cash transfers (CCT) and public health insurance programs, two types of demand-side health policies that have become popular at the national level in India over the past two decades. The proliferation of demand-side health policies at the federal and state levels marks an important shift in Indian healthcare policy which traditionally relied on predominantly supply-side health interventions that focused on public provisioning of healthcare (such as the construction of healthcare facilities and deployment of healthcare workers).

In the first and second chapters of this dissertation, I focus on the impact and implementation of CCT programs aimed at improving maternal and child health. I examine the rollout of a national CCT program to promote health-seeking behaviors among pregnant women before and after their deliveries. I use a border discontinuity design to estimate the causal effect of this maternal and child health CCT program and do not find large significant effects of this program on health-seeking behaviors. I further examine these results by conducting qualitative interviews with administrators and beneficiaries of this CCT program. I identify three reasons that explain the program's limited effectiveness in increasing health-seeking behaviors in rural areas: high administrative burdens faced by beneficiaries while accessing the program, the

role of street-level bureaucrats (childcare workers) who are overworked and underpaid, and the limited administrative capacity at the sub-district level.

In the third chapter of this dissertation, I shift focus on the impact and implementation of public health insurance programs. In 2008, the government introduced a national health insurance program that covered in-patient care for households living below the national poverty line. Along with my coauthor Changqing Sun, I design and test an information, education and communication (IEC) method to increase awareness among rural populations on how to avail benefits under this program. We find that directly communicating with beneficiaries of the program in rural areas increases the utilization of public health insurance programs as it helps reduce the learning costs associated with the complex program design. We also find that conducting village-level awareness meetings provide an ideal opportunity for government agencies to identify issues in program implementation.

The main policy implication from my analysis is that ‘one-size-fits-all’ national health programs are unsuccessful in accounting for the varying levels of social, economic and administrative development in low-income rural areas. Standardized eligibility criteria, benefit amounts and delivery methods fail to address the regional variations in the availability of healthcare services, average household income and a lack of basic infrastructure such as internet connectivity and banking services, respectively. This defeats the objective of reducing the gap in socio-economic indicators between higher

and lower developed regions as it benefits the former more than the latter. As governments introduce new programs that use modern technologies such as biometric authentication, smart cards and online bank payments, there is a need to ensure a level playing field for these technologies to be successful in areas where they are being deployed. More importantly, as highlighted in the third chapter of this dissertation, there is a need to inform and prepare communities on how to use these new technologies and avail benefits under policies such as CCT and health insurance programs.

Research on demand-side health policies has focused primarily on the impact of programs such as CCT and public health insurance on the utilization of healthcare services and their impact on health outcomes. There has been limited research on the implementation of these policies in developing countries to identify ways to improve their effectiveness. Public administration scholars can play an important role in filling this gap in the literature by focusing on program design and implementation. As I discovered during my research on maternal and child health CCT programs in India, the government-funded National Family Health Survey did not include questions about the national conditional maternity benefits programs rolled out in 2011 and 2017 in the fourth (2015-16) and fifth (2018-19) rounds of the survey, respectively. This limited the ability of researchers to estimate important implementation metrics such as coverage of the program. Public administration scholars can address this gap by conducting

qualitative studies while also advocating for the inclusion of more information about implementation in national health surveys.

As more demand-side health policies are implemented in developing countries, there is an urgent need to ensure these policies are designed for effective last-mile delivery of benefits. This will only be possible if governments ensure there are sufficient healthcare services, adequate administrative capacity, motivated street-level bureaucrats and basic infrastructure such as banking services and internet connectivity. To conclude, demand-side health policies cannot be an effective solution to addressing low utilization of healthcare services without resolving supply-side constraints such as limited availability of healthcare services and inadequate administrative capacity.

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